# MINING & PETROLEUM STANDARD

AND

# American Gas-Light Journal.

**Publishing Office, Tribune Buildings, No. 1 Spruce street, corner of Nassau.**

VOL. VI.—No. 19—WHOLE No. 127. NEW YORK, MONDAY, APRIL 3, 1865. $3 PER ANNUM—IN ADVANCE


## PETROLEUM.

### THE HISTORY OF PETROLEUM.

BY T. STERRY HUNT, M. A., F. R. S. OF THE GEOLOGICAL SURVEY OF CANADA.

The following extract, from a very long article, is highly interesting at the present time:

"Public attention has lately been drawn to the petroleum furnished by the oil wells in Canada and the United States, and we have, therefore, thought it well to bring together some few facts which may serve to explain the origin of this and of similar substances, including naptha, petroleum or rock oil, and asphalt or mineral pitch, all of which are forms of bitumen, the one being solid, and the others fluid at ordinary temperatures. These differences are, in many cases at least, due to subsequent alterations; the more liquid of the substances are mixtures of oils differing in volatility, and by exposure to the air become less fluid, and partly by evaporation, partly by oxidation from the air, eventually become solid, and are changed into mineral pitch. These substances, which are, doubtless, of organic origin, occur in rocks of all ages, from the Lower Silurian to the tertiary period inclusive, and are generally found impregnating limestones and, more rarely, sandstones and shales. Their presence in the lower palaeozoic rocks, which contain no traces of land plants, shows that they have not been in all cases derived from terrestrial vegetation, but may have been formed from marine plants or animals; the latter is not surprising when we consider that a considerable portion of the tissues of the lower marine animals is destitute of nitrogen, and very similar in chemical composition to the woody fibre of plants. Besides the rocks which contain true bitumen, we have what are called bituminous shales, which when heated burn with flame, and by distillation at a high temperature yield, besides inflammable gases, a portion of oil not unlike in its character to petroleum. These are, in fact, argillaceous rocks, intermixed with a portion of organic matter allied to peat or lignite, which by heat is decomposed, and gives rise to oily hydrocarbons. These inflammable or lignitic shales, which may be conveniently distinguished by the name of *Pyroschists* (the *brandschiefer* of the Germans), are to be carefully distinguished from rocks containing ready-formed bitumen; this being easily soluble in bensole or sulphur of carbon, can be readily dissolved from the rocks in which it occurs, while the pyroschists in question yield, coal and lignite, little or nothing to these liquids.

"It is the more necessary to insist upon the distinction between lignitic and bituminous rocks, inasmuch as some have been disposed to regard the former as the source of the bitumen found in Nature, which they conceive to have originated from a slow distillation of these matters. The result of a careful examination of the question has, however, led us to the conclusion that the formation of the one excludes more or less completely that of the other, and that bitumen has been generated under conditions different from those which have transformed organic matters into coal and lignite, and probably in deep-water deposits from which atmospheric oxygen was excluded. Thus, in the palaeozoic strata of North America we find in the Utica and Hamilton formations highly inflammable pyroschists which contain no soluble bitumen, and the same is true to a certain extent of some limestones; while the Trenton and Corniferous limestones of the same series are impregnated with petroleum or mineral pitch, and, as we shall show, give rise to petroleum springs. The fact that intermediate porous strata of similar mineral characters are destitute of bitumen, shows that this material cannot have been derived from overlying or underlying beds, but has been generated by the transformation of organic matters in the strata in which it is met with. This conclusion is in accordance with that arrived at by Mr. S. P. Wall, in his recent investigations in Trinidad. He has shown that the asphalt of that island and of Venezuela belongs to strata of the tertiary formation (of upper miocene or lower pliocene age), which consist of limestones, sandstone, and shales, associated with beds of lignite. The bitumen is found not only in the famous pitch lake, but *in situ* where it is confined to particular strata which were originally shales, containing vegetable remains. These have undergone 'a special mineralisation, producing a bituminous matter instead of coal or lignite. This operation is not attributable to heat, nor of the nature of a distillation, but is due to chemical reactions at the ordinary temperature, and under the normal conditions of climate.' He also describes wood partly converted into bitumen, which last, when removed by solution, leaves a portion of woody tissue. (Proc. Geol. Soc. London, May, 1860.)

"The sources of petroleum and mineral pitch in Europe and in Asia are for the most part like those just named, confined to rocks of newer secondary and tertiary age, though they are not wanting in the palaeozoic strata, which in Canada and the United States furnish such abundant supplies of petroleum. In the great palaeozoic basin of North America, bitumen, either in a liquid or solid state, is found in the strata at several different horizons. The forms in which it now occurs depend in great measure upon the presence or absence of atmospheric oxygen, since by oxidation and volatilisation the naptha or petroleum, as we have already explained, becomes slowly changed into asphalt or mineral pitch, which is solid at ordinary temperature. It would even appear that by a continuance of the action the bitumen may lose its fusibility and solubility, and become converted into a coal-like matter. Thus, in the calciferous sandrock in New York a black substance, which has been called anthracite, occurs in cavities with crystals of bitter spar and quartz. It sometimes coats these crystals or the walls of the cavities, and at other times appears in the form of buttons or drops, evidently, according to Mr. Vanuxem, having been introduced into these cavities in a liquid state, and subsequently hardened as a layer above the crystals which have conformed to them, showing that this coal-like matter was once in a plastic state. It is very pulverulent, brittle, of a shining black, and, according to Vanuxem, yielded but little ash and 11½ per cent. of volatile matter, which he regarded as water (Vanuxem, Geology of New York, iii. 33). A similar material occurs in the Quebec group in Canada, the equivalent of the calciferous sandrock, and fills cavities and fissures in the limestones, sandstones, and even in the accompanying trap rocks, as at Quebec, Orleans Island, Point Levis, and at Acton, presenting mamillary surfaces, as noticed by Vanuxem, which evidently show that it has once been semi-fluid. This matter from the first two localities is completely infusible, and insoluble in benzol; it readily crumbles between the fingers, and gives a very black powder. When exposed to a high temperature it gives off abundance of inflammable strong smelling vapours, which condense into a tarry oil, and leave a black residue, which when heated slowly burns away, leaving only a trace of ash. The volatile portion is equal to from 19·5 to 21·0 per cent. The mineral from the Acton copper mine is much harder and less friable, and approaches to anthracite in its characters. When heated it gives off watery vapor without any bituminous odor. Its loss by heat was 6·9 per cent. and the residue of ash was equal to 2·2 per cent.

"An evidence of the presence of unaltered petroleum in almost all the Lower Silurian limestones is furnished by the bituminous odor which they generally exhibit when heated, struck, or dissolved in acids. In some cases petroleum is found filling cavities in these limestones, as at Riviere a la Rose (Montmorenci), where it flows in drops from a fossil coral of the birds-eye limestone; and at Pakenham, where it fills the cavities of large orthoceratites in the Trenton. From some specimens nearly a pint of petroleum has been obtained. It is also said to occur in the township of Lancaster in the same formation. The presence of petroleum in the Lower Silurian rocks of New York is shown in the township of Guilderland, near Albany, where, according to Beck, considerable quantities of petroleum are collected upon the surface of a spring which rises through the Hudson River or Loraine shales. On the Great Manitoulin Island, also, according to Mr. Murray, a petroleum spring issues from the Utica Slate, and he has described another at Albion Mills, near Hamilton, rising through the red shales of the Medina group; these have prabably their origin in the Lower Silurian limestones, which may in some localities prove to be valuable sources of petroleum.

"In the Upper Silurian and Devonian rocks bitumen is much more abundant. Eaton long since described petroleum as exuding from the Niagara limestone, and this formation throughout Monroe County, in Western New York, is described by Mr. Hall as a granular crystalline dolomite, including small laminae of bitumen, which give it a resinous lustre. When the stone is burned for lime the bitumen is sometimes so abundant as to flow like tar from the kiln. In the Corniferous limestone, at Black Rock, on the Niagara River, petroleum is described as occurring in cavities, generally in the cells of fossil corals, from which, when broken, it flows in considerable quantities. It also occurs in similar conditions in the Cliff limestone (Devonian) of Ohio.

"Higher still in the series, at the base of Hamilton group, occur what in New York have been called the Marcellus shales; these enclose septaria or concretionary nodules, which contain petroleum, while at the summit of the same group similar concretions, holding petroleum, are again met with. The sandstones of the Portage and Chemung group in New York, are in many places highly bituminous to the smell, and often contain cavities filled with petroleum, and in some places seams of indurated bitumen. A calcareous sandstone from this formation, at Laona, near Fredonia, in Chautauque County, contains more than two pe

cent. of bituminous matter. At Rockville, in Alleghany County, according to Mr. Hall, the same sandstones are highly bituminous, and give out a strong odor when handled, and in the counties of Erie, Seneca, and Cattaraugus, abundant oil springs rise from the sandstones, and have been known to the Seneca Indians from ancient times. In the northern part of Ohio, according to Dr. Newberry, petroleum is found to exude, in greater or less quantity, from these sandstones wherever they are exposed, and the oil wells of Pennsylvania and Ohio are sunk in these Devonian sandstones, often through the overlying carboniferous conglomerate, and in some cases apparently, according to Newberry, through the sandstones themselves, which are supposed by him to be only reservoirs in which the oil accumulates as it rises through fissures from a deeper source, in proof of which he mentions that, in boring wells near to each other, the most abundant flow is met with at variable depths. In some instances the petroleum appears to filter slowly into the wells from the porous strata around, which are saturated with it, while at other times the bore seems to strike upon a fissure communicating with a reservoir, which furnishes at once great volumes of oil. An interesting fact is mentioned in this connection by Mr. Hall. In the town of Freedom, Cattaraugus County, New York, is a spring which had long been known to furnish considerable quantities of petroleum. On making an excavation about six yards distant, to the depth of fourteen feet, a copious spring of petroleum arose, and for some time afforded large quantities of oil, after which the supply diminished in both the old and new springs, so that it is now less than at the first settlement of the country. Notwithstanding its generel distribution throughout a considerable region in the adjacent portions of New York, Pennsylvania, and Ohio, it is only in a few districts that it has been found in quantities sufficient to be wrought with profit. The wells of Mecca, in Trumbull County, Ohio, have been sunk from 30 to 200 feet in a sandstone, which is saturated with oil; of 200 wells which have been bored, according to Dr. Newberry, a dozen or more are successfully wrought, and yield from five to twenty barrels a day. The wells of Titusville, on Oil Creek, Pennsylvania, vary in depth from 70 to 300 feet, and the petroleum is met with throughout. The oil from different localities varies considerably in color and thickness, and in its specific gravity, which ranges from 28° to 40° B. (from ·890 to ·830).

"The Valley of the Little Kanawha, in Virginia, which is to be looked upon as an extension of the same oil-bearing region, contains petroleum springs, which so long as 1836, according to Dr. Hildreth, yielded from fifty to a hundred barrels yearly. It here rises through the carboniferous strata, and, as elsewhere, is accompanied by great quantities of inflammable gas.

"The black inflammable shales of the Devonian series in Western Canada, which were formerly referred to the Hamilton group, and are now considered to belong to the base of the overlying Portage and Chemung, appear at Kettle Point, on Lake Huron, and in portions of the region south to Lake Erie; but the oil wells sunk in Enniskillen show that the source of the oil is really below the horizon of these shales, inasmuch as the underlying argillaceous shales and limestones of the Hamilton group are there found near the surface, and have been penetrated 120 feet, at which depth oil is still met with, leaving but little doubt that it is derived from the limestones beneath which, both in New York and in Canada, are impregnated with petroleum. A somewhat slaty, brownish-black, bituminous dolomite, belonging to the Corniferous limestone from Pine Creek, near Alma, in Kincardine, gave me not less than 12·8 per cent. of bitumen, fusible and readily soluble in benzole, and another from the Grand Manitoulin Island, which was a brown, crystalline dolomite, yielded from 7·4 to 8·8 per cent. of similar bitumen. The solid form of this bitumen at the outcrop of the rocks is probably due to the action of the air.

"The existence of liquid bitumen in the Corniferous limestone in Western Canada was pointed out as long ago as 1844 by Mr. Murray, who tells us that this rock is generally bituminous, and the cavities in it are often filled with petroleum; the quarries near Gravelly Bay, in Wainfleet, are cited as an example. In the report for 1850 we find a notice of what are called oil springs, in which petroleum rises to the surface of the water near the right bank of the Thames, in Mosa, and in two places on Bear Creek, in Enniskillen. Subsequently Mr. Murray described a considerable deposit of solid bitumen or mineral tar, which occurs in the same township, extending over about half an acre, and in some places two feet in thickness, doubtless formed by the drying up of petroleum springs. I had already described this bitumen from specimens in the Museum of the Geological Survey, and called attention to its economic applications, remarking that 'the consumption of this material in England and on the Continent for the construction of pavements, for paying the bottoms of ships, and for the manufacture of illuminating gas, is such that the existence of these deposits in the country is a matter of considerable importance.' At this time solid bitumen was thus employed, but in the liquid form of petroleum its use was chiefly confined in Europe to medicinal purposes. Under the name of Seneca oil and Barbadoes tar it had long been known and employed medicinally by the native tribes of America. Its use for burning, as a source of light or heat, in modern times has been chiefly confined to Persia and other parts of Asia, although in former ages the wells of the island of Zante, described by Herodotus, furnished large quantities of it to the Grecian Archipelago, and Pliny and Dioscorides describe the petroleum of Agrigentum, in Sicily, which was used in lamps under the name of Sicilian oil. The value of the naptha annually obtained from the springs at Bakoum, in Persia, on the Caspian sea, was some years ago estimated by Abick at about 600,000 dollars, and the petroleum wells of Rangoon, in Burmah, are said to furnish not less than 400,000 hogsheads yearly. In the last century the petroleum or naptha obtained from springs in the Duchy of Parma was employed for lighting the streets of Genoa and Amiano; but the thickness, coarseness, and unpleasant odor of the petroleum from most sources were such that it had long fallen into disuse in Europe, when in 1847 the attention of Mr. Young, a manufacturing chemist of Glasgow, was called to the petroleum which had just been obtained in considerable quantities from a coal mine at Riddings, in Derbyshire, from which by certain refining processes, he succeeded in preparing a lubricating oil. The source, however, soon becoming exhausted, he turned his attention to the somewhat similar oils which Reichenbach and Selligue had long before showed might be economically obtained by the distillation of coal, lignite, peat, and pyroschists. To this new industry Mr. Young gave a great impetus, and in connection with it attention was again turned to the refining of liquid and solid bitumens, it being found that the latter by distillation gave great quantities of oils, identical with those from petroleum. About the year 1853 the attention of speculators was turned to the deposits of bitumen in Enniskillen just described, but it was not till 1857 that Mr. W. M. Williams, of Hamilton, with some associates, undertook the distillation of this tarry bitumen, when they soon found that by sinking wells in the clay beneath it was possible to obtain great quantities of the material in a fluid state. Large numbers of wells were subsequently sunk by Mr. Williams and others in the southern part of the township of Enniskillen, along the borders of Black Creek, and also about ten miles farther north on Bear Creek. Nearly 100 wells had been sunk when I visited the place in December last, and many more have since been bored.

"These wells occur along the line of a low, broad anticlinal axis, which runs nearly east and west through the Western Peninsula of Canada, and brings to the surface in Enniskillen the shales and limestones of the Hamilton group, which are there covered with a few feet of clay. The oil doubtless rises from the Corniferous limestone, which, as we have seen, contains petroleum. This being lighter than the water which permeates at the same time the porous strata, rises to the higher portion of the formation, which is the crest of the anticlinal axis, where the petroleum of a considerable area accumulates, and slowly finds its way to the surface through vertical fissures in the overlying Hamilton shales, giving rise to the oil springs of the region. The oil is met with at various depths. In some cases an abundant supply is obtained at forty feet, while near by it is only met with at three or four times that depth, and sometimes only in small quantities. Everything points to the existence of separate fissures communicating with a deepseated source. At Kelly's wells, however, it would appear that a reservoir has been formed much nearer the surface, where in a bed of gravel and boulders, underlying the superficial clays, the oil rising from the rocks beneath has accumulated. The inflammable gas which issues from the wells if not necessarily connected with the petroleum, inasmuch as it is an almost constant product of the decomposition of organic matters, and is copiously evolved from rocks which are destitute of bitumen. It is similar to the gas of marshes and to the fire-damp of coal mines. A curious circumstance is, however, noticed by Mr. Robb; the gas which accumulates in the oil pits becomes charged with vapours which produce upon the workmen a sort of intoxication like nitrous oxide. This is not surprising when we remember that volatile hydrocarbons, like amylene, closely related to the hydrocarbons of petroleum, produce similar effects when their vapour is respired.

"The oil wells of the United States are for the most part sunk in the sandstones which form the summit of the Devonian series; but the oil wells of Western Virginia and Southern Ohio rise though the coal measures which overlie the Devonian strata, while the wells of Enniskillen are sunk much lower, and are sunk in the Hamilton shales, which immediately overlie the Corniferous or Devonian limestone It is not impossible that in Ohio some of the higher strata, such as the sandstone, were originally impregnated with bitumen, but in Canada, from the absence of this substance diffused through the shales in question, we are forced to assign it to a lower horizon, which is doubtless that of the bituminous Devonian limestone. The question of the extent of the supply of petroleum is not easily answered; the oil now being wrought is the accumulated drainings of ages, concentrated along certain lines of elevation, and the experience of other regions has shown that these sources are sooner or later exhausted; but though the springs of Agrigentum, like those of Derbyshire, have nearly ceased to flow, those of Burmah and Persia still furnish, as they have for all ages past, immense quantities of oil, and nothing but experience can tell us the richness of the subterranean reservoirs."—*London Chemical News*

## PETROLEUM IN CALIFORNIA.

Crptain J. Williamson, Engineer-in-Chief of a survey for a southern route Pacific railroad, made by order of the State of Texas, in 1850, and of a re-survey made in 1857, has made a report to the "Pacific Coast Petroleum Company of New York," based on extracts of his field-notes taken in those surveys, which furnishes such strong and convincing testimony of oil pools in California, that we copy it in full.

At the time Captain Williamson noted the oil phenomena which he witnessed on the Pacific coast, on the vast estate of 75,000 acres now under perpetual deed to the Pacific Coast Petroleum Company, the commercial value, as well as the illuminating and lubricating power of petroleum were unknown. Hence Captain Williamson made note of the oil phenomena witnessed by him in Southern California, as a contribution to science, descriptive of a great national wonder in the laboratory of the earth. And now that oil from the well has become a stable in commerce, and an element in the na ion's wealth, Captain Williamson's notes, made in the spirit of a philospher and student, are of practical bearing and account, because of their unbiased origin and unadulterated truthfulness, having their source and information in times anterior to these present days of speculations, when impressible human nature so often yields, sensibly, or insensibly, to prevailing influences

California is a grand commonwealth, with natural resources on a magnificent scale. And Captain Williamson's plan for running oil through pipes from the wells to the coast, "to secure it from fire and evaporation," is no doubt adjusted in his own mind to what he has himself seen, and what he feels himself competent to accomplish.

Readers conversant with the value of the product of the flowing oil wells in Pennsylvania will most keenly appreciate the truths narrated and opinions expressed by Captain Williamson. Conceive a perpetual mineral right on seventy-five thousand acres of oil territory on Oil creek, in Pensylvania! Imagine these seventy-five thousand acres to be in California, and then you will have a proximate conception of the Pacific Coast Petroleum Company's estate and prospects, as described in Captain Williamson's report:—*U. S. R. R. and Mining Register.*

To the President and Trustees of the Pacific Coast Petroleum Company of New York.—Gentlemen: I submit herewith a report, founded on extracts from my field-notes, made on a survey and exploration of the southwest coast of California in 1850, and a re-survey in 1857 for a railroad line, by order of the State of Texas.

These notes and stations are taken from twenty-two different lines that were run from east to west, and from north to south, entirely through the property now under lease by your company. On the coast are a number of good landing places for shipping oil and other produce, where vessels can load in safety.

Apart from the oleaginous wealth, and valuable springs plainly visible, the exploration and field-notes mention the quantities of salt and coal found on the survey.

Station 117, West by South, on Stump 1-6 feet South by West.—A vein of mineral bitumen, burning well, of good quality for steam purposes.

Station 119, on Stump Cedar Wood, West by South.—Here exists a very remarkable hot spring, pouring out a vast quantity of gas. When lighted, it burns up very high—not less than ten feet. A very oily substance is thrown up, which, used on the hands, makes the skin feel very soft and pleasant.

Station 124, on Rock Southwest 186 feet direct South.—At this station is an immense bowl, or primeval sea, which has, at some former period, been drained. The gasses are pouring out of the ground, and the soil and sand so mixed up with an oily substance that when cattle get in the mire they cannot get out with help, but die there, as their bones indicate, which are thickly scattered around.

Station 174, on Stump of Red Wood, 118 feet West by South.—Here a well was sunk for some purpose, and the water was so oily that it could not be used, and is now so full of gas that, on appliying a light, it will burn for hours in a large and beautiful flame, sufficient to light the entire camp.

Station 172, on Rock, 115 feet East half South.—A spring of water emitting gasses. On applying fire, a flame will spread over the water. This water is of a very tarry nature, not fit to drink.

Station 171, Middle Line on Rock Sand Stone, 261 feet West.—There is a large swamp of oily, silicious matter.

Station 173, Middle Line, on Stump of Red Wood.—At this station are found fatty indications; gaseous matter oozing from the ground, running down to the streams and spreading itself upon the surface of the water to the bay, and shows itself a long distance along the sea shore.

Station 265, Southwest by South, North Line.—Is a gaseous spring—bitumen found all along the running stream.

Station 181, West by South, on Stump.—Are fine salt springs, or "licks," of the best description, indicating salt. Sandstone formation, up-heavings.

Station 182.—Salt spring, or "lick," hot and gaseous.

Station 191, North by West, 200 feet in Gulch.—Are coal beds cropping out. A singular feature in this coal is, that on breaking it, are found small pieces of rosin, in cubes, same on the Ojai Ranch, superior for gas.

Station 871, Northwest by West, 264 feet.—A fine stream. A semi-bituminous coal, of good quality, cropping out. Very gaseous springs all about this station.

Station 916, West by South, 104 feet on Rock.—At the bottom of a range of hills, or "loomas," are a number of hollows, dug out by the Indians for the purpose of collecting the oily substance which runs from the crevices of the rocks. A large quantity of this fatty, unctious substance is contained at the botton of these hollows—same on Ojai Ranch.

Station 974, West half North, 173 feet on Sandstone.—A spring of water. There is a continued escapement of gases, which, on the application of a light, is instantly ignited, and will burn till it joins the main stream, when it goes out. (Of a bituminous nature, amber-colored.)

Station 1,118, South, 96 feet on Stump of Oak.—Is a very extensive salt lick, long resorted to by wild animals and the Ranch cattle.

Station 71, Northwest.—On the meadows near the stream bubbles up an oileous substance, which runs down to the stream, spreads out upon the surface of the water in films of beautiful colors, and floats down with the current in this form to the sea.

Station 314, Southwest, on Stump, 116 feet South.—Gas bubbles out of the ground, and a singular substance runs out to the stream and emits the same singular odor we have met at other springs we have come across on the survey.

Station 317, Southwest.—Here bubbles up a dark amber-colored substance, of very fatty appearance. I should call this amber, or Mecca oil.

Station 181, on Rock, Southwest, 118 feet.—Is a burning spring of great power, of an oileous nature. A large quantity of bitumen all around this spring, burning beautifully, and fit for gas purposes.

Station 244 North, 77 West on Stump.—Boiling spring, of an oily nature—coal cropping out.

Station 238, North 67, on Sand Rock.—Boiling springs.

Station 265, West 79 on Stump, 172 feet.—On dry stream—gas, coal formation.

Station 273, West by North on Stump.—Oily coal, fit for gas.

Station 150, 50 North by West.—Gas oozing out of the ground.

Stations 356 to 379.—Is a range of hills called, in Notes, Gas Range, on account of the numerous springs of gas and oileous substance running out of the rocks, fit for use.

Station 383, on Stump 77 North.—Is a small range of hills, called Amber Range, from the amber color of the substance which oozes out of the crevices of the rocks, and stick fast to the sides of the rock.

Station 182, West by South 164 feet.—There is a fine Soda spring—it is quite hot.

Station 183, West by North 173 feet.—Here is a spring—has a very tarry taste, and is constantly bubbling up.

Station 172, on Stump of Cedar-Red.—Here are found extensive hot and cold springs.

Station 146, second from Coast on Sand Rock, running North 183 feet.—At the head of a stream, in the morning, the water is covered to quite an extent with an oily substance floating on the surface; gas jets all around—every place that admits of its collection by the rise or fall of the water, is filled with a fatty substance covering the meadows.

Station 125, on a Stump Sand Stone.—Salt water rushes out a large aperture or crevice in the rock, accompanied by an inflammable substance which will burn quite bright, even after it mixes with the waters of the Cobrada.

Station 137, No. 77, 30 West on Stump.—Bull Creek, at the head of this stream, is a swamp or small lake which continues to drain and collect the oileous substance that collects on the surface of the swamp.

Station 195, West 52.—Is an amber swamp—beautiful colors cover the surface of the water.

Station 240, North 75, West 33—216 feet.—Eighty-five feet south is a fine salt spring.

Station 800, on Stump of Swamp Oak.—Is a fine salt spring—gas springing out of the ground.

Station 802, on Peg.—On the elbow of the stream, oileous substance bubbles out of numerous places on the meadow land—with three burning springs.

Station 270, West 77, North.—At the head of a stream is a large number of burning springs, near by Camp Independence, and a large number of sulphurous springs.

Station 398, West by North 75 feet.—Another small range of hills similar to the last.

Stations 406 to 423.—This range of coal formation is very gaseous and oily; to describe the different Stations would be a mere repetition of the foregoing, which is unnecessary—the field-notes showing the extreme richness of these lands in the production of petroleum, and other substances not yet tested—or their uses brought out in a commercial point of view, and the immense wealth which underlies all the land belonging to your company.

On a number of small streams are masses of silicious oil bearing mud filled with marine plants. It is supposed that the external surface of the earth, where the oil region is situated, once occupied the level of these oil reservoirs, and conduits which are found from three to eight hundred feet deep, and was covered with salt marshes and a luxuriant marine flora abundantly charged with salt.

Over the accumulation of the remains of this ancient vegetable world, successive layers and strata of sand were gradually formed in the course of ages, and ultimately become hardened into sandstone rock. The vegetable masses thus hermetrically sealed up, went through a sott of chemical analysis in this vast natural laboratory, and was resolved into three natural elements of gas, oil and water. The last of these being the heaviest, would occupy the lowest level, the oil next, and the gas lightest of all. The cavities in which these fluids are lodged being of an irregular shape, the boring tool may first penetrate the part where the oil is in contact with the extremities. On this opening being made, the gas would naturally rush towards it, thus forcing up the oil before it, and what is known as a flowing well would be the result The oil rises of itself to the surface of the earth, and flows copiously into the receptacles prepared to receive it. When the gas had escaped, the spring of oil would cease to run, its motive power being withdrawn, and a pumping apparatus would be necessary to extract it from its subterranean reservoir.

From these field notes, it appears that unmistakable traces of petroleum are found at the foot of the hills, and on the streams. In a great number of places a kind of wax or amber-colored bitumen, well known to mineralogists, exist in large quantities. How valuable this substance may turn out it is impossible to say. I believe on examination there will be found to be a vast bed of oil.

I can furnish other information from the field-notes of this survey, but believe the above extracts will satisfy you, as showing the great value of the property leased by your company.

My plans for pipes, cuts off, for different wells and companies, to run oil to the coast, to secure it from fire and evaporation, and for filtering it before manufacturing and preparing it for market, together with a sketch of the different markets now opened and ready to purchase all the oil raised on the west coast, and the markets which can be secured by your company will be given in a special communication to your board, at some future day.

I will, however, suggest that, to make the enterprise as lucrative as possible, the company should commence operations at such places as indicate the greatest quantity of gaseous, fatty matter oozing from the ground and percolating the soil; and on the part that slopes gently to the west, to lay pipes to the streams near the coast, and run oil through them to the streams, which will save expense of transportation.

Instead of shipping your crude oil, refine it upon

the property, which would materially reduce the cos ot freight. Then, as the foundation of extensive operations are laid, and others opening, your machinery, increased from time to time with your enlarged capital, may be made available to work other mines in the vicinity, at a very small additional cost to the compsny, which would add largely to the profits of the enterprise; and, with a man of sagacity, perseverance, energy and determination, to carry on your operations, there is no doubt of your success, and that your profits will astonish the world.

I cannot refrain from the expression of my great satisfaction upon finding that the extracts from my field-notes, no less than my general views of the character and value of your property are so completely in accordance with those contained in the full and valuable report of Prof. Silliman, whose examination and surveys had nothing in common with mine, but an entire confidence in our views of the present condition and future destiny of this great oil region of California.—

Respectfully yours, Capt. J. WILLIAMSON,
Engineer-in-Chief of Survey.

# MINING.

## THE DESTINATION OR DISTRIBUTION OF THE GOLD PRODUCT OF THE UNITED STATES.

The distribution of the gold mined in the United States, and its final destination require to be stated with as near an approximation as may be practicable, to estimate its availability as a source of revenue.

The gold product of the Pacific coast was, for the first five years, nearly all brought to the mints at the east, Philadelphia and New Orleans, for coinage; but on the establishment of the branch mint at San Francisco, in 1854, the greater part was coined or assayed there. It was still shipped to the Atlantic cities as its commercial destination, however, until 1862, when the risks of transit in American vessels caused a large diversion to be made direct to England from the Isthmus, instead of coming to New York, as before. The establishment of the mint at San Francisco had some influence, apparently, in favoring this diversion, as sums of considerable magnitude then began to be shipped to England and China direct from San Francisco. The average of the three years, 1856, 1857, and 1858, was nine millions to England, but for the three years following it fell to four millions each year. To China, the average treasure shipment was three millions, about half in silver, and this chiefly of Mexican or other foreign origin, for each year subsequent to 1857.

The following are the sums of California gold deposited at the eastern mints and the San Francisco branch mint, from 1848 forward:

| | East'n mints. | San Fran. mint | Total. |
|---|---|---|---|
| 1848 | $45.301 | ..... | $45.301 |
| 1849 | 6,151,360 | ..... | 6,151,360 |
| 1850 | 36,273,106 | ..... | 36 273,106 |
| 1851 | 55,938,232 | ..... | 55,938,232 |
| 1852 | 53,794,700 | ..... | 53,794,700 |
| 1853 | 55,127,012 | ..... | 55,127,012 |
| 1854 | 46,091,650 | $10,842,281 | 56,923,931 |
| 1855 | 28,124,958 | 20,860,437 | 48,985,495 |
| 1856 | 18,340,943 | 29,209,218 | 47,550,161 |
| ½yr. '57 | 10,601,350 | 12,526,827 | 23,128,177 |
| Fis yr 58 | 21,492,352 | 19,104,367 | 40,506,719 |
| 1859 | 12,750,898 | 14,098,564 | 26,849,462 |
| 1860 | 6,793,900 | 11,437,012 | 17,230,912 |
| 1861 | 19,772,398 | 12,432,064 | 32,204,462 |
| 1862 | 13,080,594 | 16,501,814 | 29,582,408 |
| 1863 | 494,284 | 18,100,480 | 18,594,764 |
| 1864 | 1,521,953 | 14,841,350 | 16,362,303 |

From 1860 forward this statement includes silver produced on the Pacific cost, not combined with gold, amounting to from $150,000 to $850,000 each year Silver parted from gold, and subsequently coined, is included in the value of the gold deposited, it is supposed, as those deposits are stated in the mint reports.

From this table it appears that the highest average product was from 1851 to 1854, reaching $55,500,000 each year. The next three and a half years, to June 30, 1858, average $45,763,000 annually, but immediately after this the amount falls off greatly. Four fiscals years, 1859 to 1862 inclusive, average but $26,466,811 annually, and the last two fiscal years average but $17,500,000 each.

What direction the gold product takes to avoid assay and coinage is not easy to state, the supposed extent of private assaying being insufficient to account for the deficiency.

In the sums named above most of the Idaho gold is included, but none of that of Colorado. The Nevada gold and silver also are included, so far as coined or assayed in the United States, but most of the silver of Nevada is exported to England without being refined, and often in the ore. The distinction observed in constructing the previous table, is to embrace all the products of the mines of the interior finding outlet at San Francisco. The following is the coinage of gold and silver of the Colorado and other interior mining districts, exclusive of the small amount mined in Virginia and Georgia:

| | |
|---|---|
| Fiscal year 1859-'60 | $649,548 |
| " 1860-61 | 2,114,333 |
| " 1861-'62 | 2,057,645 |
| " 1862-'63 | 2,846,976 |
| " 1863-'64 | 1,659,121 |

The additions from these eastern interior mines is therefore small, and it is apparent that the portion actually coined or assayed is short of the entire product, for the last two years, at least; perhaps because of dust retained in the Colorado district, and also on account of private assays.

Notwithstanding the great decrease shown to have taken place in the sums of gold coined or assayed since 1858, there has been no essential diminution in the shipments from San Francisco to various markets in the Atlantic cities and in foreign countries. In a previous table these annual exports from California have been given, from 1854 to 1864, and though a decline to $42,000,000 yearly occured from 1860 to 1862—three years—yet in 1863 $46,000,000 was sent out, and in the year ending June 30, 1864, the export was $51,264,000. Of this sum the total assayed or coined at all the mints and offices was but $16,362,000.

Assay and coinage at the mints and public assay offices, cannot, therefore, be now assumed to embrace more than one-third of the annual product of the mines.

The destination of the gold leaving San Francisco has greatly changed within three years past, as regards the proportion sent primarily to the Atlantic cities. The actual sums to each country can be given only from 1854 forward, the account being for calendar years.

Treasure sent from San Francisco to—

| Year. | New York. | England. | Other countr's. | Total. |
|---|---|---|---|---|
| 1854. | $46,533,166 | $3,781,080 | $1,731,387 | $52,045,633 |
| 1855. | 38,730,564 | 5,182,156 | 1,248,011 | 45,161,731 |
| 1856. | 39,895,294 | 8,666,289 | 2,140,852 | 50,697,434 |
| 1857. | 35,531,778 | 9,347,743 | 4,097,171 | 48,976,697 |
| 1858. | 35,891,236 | 9,265.739 | 2,391,051 | 47,548,026 |
| 1859. | 40,146,437 | 3,910,930 | 3,583,095 | 47,640,462 |
| 1860. | 35.719 296 | 2,672,936 | 3,933,684 | 42,325,916 |
| 1861. | 32,628,011 | 4,061,779 | 3,986,968 | 40,676,758 |
| 1862. | 26,194,035 | 12,950,140 | 3,417,586 | 42,561,761 |
| 1863. | 10,389,330 | 28,467,256 | 7,215,333 | 46,071,920 |
| 1864. | 8,745.277 | 28,364,870 | 6,662,412 | 43,772,559 |

The countries not named are China, Panama, the Hawaiian Islands, Manilla, Mexico, British Columbia, and small amounts to Havana, Guatemala, etc. In 1862 a peculiar movement began, primarily as a measure of security against pirates, in the transit from the Isthmus on the Atlantic. This was the sending of large sums to England, not cleared or recorded as exports, but declared to be on account of eastern holders, and ultimately intended to be returned to New York. Not being entered as exports at the custom house at San Francisco, the extent of the movement was not observed until it had beed carried through most of two fiscal years. The following were the reported and the actual exports of coin and bullion to foreign ports from San Francisco;

| | Reported. | Actual. | Universal export. |
|---|---|---|---|
| Year. 1862-'63 | $3,529,755 | $21,737,684 | $18,207,879 |
| Year. 1863-'64 | 6,285,055 | 42,020,000 | 35,734,945 |
| Qr. end'g Sep. 30, '64. | 2,876,000 | 11,640,612 | 8,764,612 |

This diversion of treasure from its usual course to New York is large, and it does not, so far at least, return in any form of remittance of precious metals back to New York from England. Much of it may be, and probably is, held as undrawn deposits abroad, or used when the market favors to create exchange, and thus pass as absolute sale. It is not, however, a commercial remittance in any ordinary sense, not being sent in the adjustment of balances, or in any way for the account of foreign owners.

No important or decisive effect on the stock of specie in the Atlantic cities, resulting from this movement, appears in the currrent statements of the stock of coin and bullion in the banks and government depositories at New York. The best calculation of this stock, derived from official statements as far as they can be made available, gives the following aggregates on November 1, 1864, and at the same date for five years previous.

Specie in banks and sub-treasury at New York.

| | |
|---|---|
| November 1, 1859 | $25,300,000 |
| November 1, 1860 | 27,900,000 |
| November 1, 1861 | 50,700,000 |
| November 1 1862 | 40.801,000 |
| November 1, 1863 | 38,370,251 |
| November 1, 1864 | 33,958,867 |

The stock of the precious metals was thus greater in November, 1864, than in any year previous to 1861, and it was eight millions greater than the average of 1859, and 1860.

Including the above named sums of unusual export of specie from San Francisco to England. The four fiscal years, 1860-'61 to 1863-'64, show an annual average going to foreign countries of $42,168,669, in excess of the quantities imported; while the four previous years, ending June 30, 1860, gave an average export of $51,120,625, in excess of all imports. The annual excess of specie exports, in other words, was less in the last four years than in the like period ending in 1860 by $9,951,956—nearly ten millions of dollars—annually.

A proof of the absence of any undue commercial drain of specie to Eorope is afforded in the rates of exchange prevailing in the New York market, which were, when quoted in gold, constantly below the par from June to October, 1864. The average nominal rate was 108½ to 109, as is shown in the appended table, the par being nearly 109¼.

It is a remarkably fact, also, that for part of 1863, and particularly during 1864, extreme difficulty has been experienced in retaining the usual stocks of bullion and coin in the Bank of England and other national banks of Europe. The drain to the continent and to the east has taken all the available supplies received from America and Australia as fast as brought, many of the shipments, indeed, being sold for export before their arrival. The Bank of England raised its rate of discount no less than eight times during the year, for the sole purpose of stopping the drain of specie from its vaults. The very unusual discount rate of 9 per cent was maintained for two and a half months, and 8 per cent for three; the average for a year, from November, 1863, to November, 1864, being 7½ per cent. The Bank of France had difficulties scarcely less; its rate of discount have frequently raised to 8 per cent, and special purchases of gold being several times made to maintain the bank. A like condition prevailed in every capital and monetary centre of Europe, the average rate of discount at the national banks having been maintained at nearly or quite double the usual rates.

Generally the rate of interest for current commercial purposes has been much higher in Europe for the year referred to, and particularly in England, than in the United States; whereas it is usually but little more than half the prevailing rates here. The purpose of the high rates established by the Bank of England and

other national establishments being the retention of gold against an exhausting drain, which would otherwise deplete their vaults so as to render the maintenance of specie payments impossible, the above facts are directly pertinent to the question of the retention and control of our own productions of gold.

In Europe the cause of the drain appears chiefly to be the unusual extent of purchases of cotton and other raw material for manufactures in Egypt, India, China, and other distant countries, to which the return of manufactured goods is insufficient to pay for these purchases. Cotton and other of these raw materials advanced greatly in price, and therefore large sums were required to move them; and, in addition, an unusual active speculative movement in them has been continued for a long period.

The general result of the movement in gold has, therefore, been to reduce the stocks held in reserve in England and France quite as much as the reserve has been reduced in the United States. As compared with 1860 the reduction in London is greater than in New York, and the relation of gold to general commerce and finance is in ampler proportions and on a safer footing in the United States than in either England or France at the close of 1864. Tables are appended showing the rates of exchange on England prevailing in New York, and the rates of discount or interest both in the United States and Europe.

The only country presenting conditions analogous to the gold-mining interests of the United States is Australia; the next in magnitude being the Russian mines, which are, however altogether unlike either the Australian or American, and whether paying royalty or not, would not illustrate the modes or consequence of raising revenue from them in any form. In Australia the first occupation was without law or regulation other than the miners established for themselves; but a system of superintendence was finally established, under mining surveyors and registrars for defined districts, the whole constituting a mining department in each of the great colonies, Victoria, New South Wales, and South Australia. There are mining leases granted, but no revenues of consequence can be defined as accruing at the mines under this superintendence. An export duty was laid, however, in 1856, of 2s. 6d. per ounce troy on all gold or bullion shipments out of Australia. This export duty has been vigorously opposed since its establishment, and, whether from that cause in part, or from other causes, an important decline has taken place in the gold product of Australia.

At the standard price of gold per ounce troy, £3 17s. 6d., the export duty of 2s. 6d. is near 3 2-10 per cent. In 1863 the export duty of the colony of Victoria (Australia) is stated to have been 1s. 6d. per ounce, which is less than 2 per cent; but the revenue yielded by it in that year was £121.508, ($588,100). Positive information as to other colonies or other proceeds is of mining taxes in Australia is not accessible, but it is evident that the rate of export duty first established has been reduced, and that vigorous opposition was developed to this or any other mode of taxing the mines. The British home government has received no revenues from the Australian mines.

In California it has been attempted to continue the gold standard of currency notwithstanding any changes in the price of gold in the Anlantic States, and the result has been that a severe monetary pressure, and great embarrassments to business, have constantly prevailed there. A reduced production of gold in 1863, with short crops in 1863 and 1864 have combined to reduce the resources of all classes there below the average condition for several years previous. Many mining locations have been abandoned in consequence, and the power of the miners to bear taxation has been much lessened.

Without a surplus of gold or other products so great as before for exportation, the effect of the eastern currency in competition with gold has been to increase the cost of doing business there, and to add to their expenses without compensating addition to their proceeds or profits. Respectfully submitted.

LORIN BLODGET.

Treasury Dep't, Washington, Nov. 16, 1864.

## A MINING AND TRANSPORTATION COMPANY.

For many years past there has been an urgent demand for transportation from the mines to the sea-ports, in Arizona and other districts which abound in copper and other ores, which cost largely for transportation. The mine owners have been involved to the full extent of their capital and credit in the mines themselves, and therefore have been unable to provide any better transportation than the mules and rude wagons which they could hire; and the cost of this inefficient means has been so great as to prevent much profit on their operations. For a long time they have endeavored to raise capital in this market, and at last they have succeeded; at least there is a company formed which contemplates the application of sufficient capital to work with profit. It is called the "Era Mining and Transportation Company," and has a capital of $1,000,000, intended to be increased to $5,000,000. It has secured the right to use the pneumatic drilling-engine, which is used in the Hoosick tunnel, and it intends to give a fair trial to traction engines, and provide a large force of them if they work as economically as they are reported to work in England and its colonies. From what we know of the general abilities of some of the leading men in this company, and of their information in engineering matters, we feel encouraged to hope that the important question, whether traction engines may not be more economical than animals, or even than rudely-constructed railways, for the slow transportation of ores, will be settled in a way more satisfactory than that hitherto pursued, which has been to leave it to the slender means of inventors until they have established it.

The region of the company's operations includes some of the best mining property on the continent; and the application of capital and science, on the scale comtemplated, warrants the hope that it will be successful and lead to a system of mining operations that will greatly increase the national wealth, as well as the fortunes of the adventurers.—*American Artizen.*

## MINES AND IRONWORKS OF PRUSSIA.

Annexed are very copious particulars of the production of the mines and iron works of Prussia during the year 1863:

| | Quantity. | Value. |
|---|---|---|
| Coal.....Tons | 14,304,575..... | £3,504,160 |
| Lignite..... | 4,026,304..... | 547,073 |
| Minerals of all kinds | Not stated..... | 1,190,578 |
| Pig..... | 582,550..... | 2,275,975 |
| Steel Pig..... | 19,997..... | 109,178 |
| Cast pig, first fusion. | 34,131..... | 287,049 |
| Iron..... | 347,972..... | 3,417.336 |
| Unworked steel.... | 28,975..... | 421,299 |
| Zinc..... | 60,311..... | 950,007 |
| Silver..... | 23..... | 203,371 |
| Gold..... | Not stated..... | 31 |
| Lead and litharge.. | 24,409..... | 461,277 |
| Copper..... | 2,682..... | 253,204 |
| Nickel..... | 375..... | 87,621 |
| Arsenic..... | 261..... | 4,366 |
| Antimony..... | 60..... | 2,400 |
| Alum..... | 2,588..... | 24,803 |
| Copperas..... | 2,392..... | 8,306 |
| Sulphate of copper.. | 264..... | 5,130 |
| Sulphur..... | 310..... | 2,870 |
| Cadmium..... | Not stated..... | 61 |
| Salt..... | 200,711..... | 252,188 |

The value of the coal and lignite produced in Prussia in 1863 was thus £4,651,232; of the iron minerals, etc., £1,190,578; of the products of the blast furnaces, £2,671,683; and of the other miscellaneous products, £2,255,635—making a general aggregate of £10,169,128. The nunber of workmen employed in the coal and lignite workings was 83,307; in the other mines, 41,490; and in the ironworks, and saltworks, 74,035—making an aggregate of 198,832.

Without tools and the ability to use them, man would indeed be but a poor, bare, forked animal, worse clothed than the birds, worse fed than the jackal, and worse housed than the beaver.

# GAS.

## WOOD GAS.

FOND DU LAC, Wis., March 16th, 1865.

*Mr. Editor;* In the last number of your Journal, I notice a communication in which "C. D." refers to the process of making illuminating gas from wood, and ventures a suspicion that petroleum, which he says, is sometimes used with wood, is the "great source of this wrongly named wood gas as to its illumination."

For the past two years and a half we have been making gas entirely from wood—and if the result of our experience during that time shall be found sufficient to answer the enquiries of your correspondent, and worth a place in your columns, it is at your disposal.

The gas works in this city were finished in 1861, and for some months our gas was made from coal, but the continued advance in the price of coal finally determined us to investigate the process by which Dr. C. M. Cresson, of Philadelphia, claimed to make illuminating gas from wood alone. Being satisfied as to the practicability and economy of the process, we at once introduced Mr. Cresson's retorts and burners, and commenced the manufacture of gas from pine wood.—Since that time we have been making gas exclusively from seasoned pine slabs, furnished by the numerous saw mills in this city, which are delivered at our works at an expense of from $1,50 to $2 per cord. From a cord of these slabs we make, on an average, 8000 cubic feet of gas, while experiment has satisfied us that a cord of sound body pine, will yield, at least, 12000 feet.—Good gas may, undoubtedly, be made from the different varieties of hard wood, but these we have never used except for heating the retorts.

The amount of lime used in purifying, will not vary much from one bushel to a thousand feet. The cost of making wood gas we find to be less than one-half the expense incurred in using coal, while for all purposes the wood gas is quite as good; in fact, for its brilliancy and illuminating power, it is admitted to be fully equal to that manufactured from the best Pittsburgh coal.

A. D. BONESTEEL,
Supt. Gas Works, Fond du Lac, Wis.

TERRE HAUTE, Ind., March 11th, 1865.

* * * * In reference to wood gas, I would merely observe, that aside from general information it has comparative little value to us, from the fact that in this Prarie country wood is too scarce an article, and bituminious coal too plenty, to ever make it of much value as a means of producing gas for illuminating purposes. We have to pay from $5 to $6 per cord for family purposes, and scarce at that.

There are unmeasured fields of coal in our immediate vicinity and on every side, excellent in quality for grates, mechanical purposes, raising steam, &c. &c. I was informed recently, that some gentlemen from Pennsylvania were examining the coal mines now working on the line of the Terre Haute and Richmond Railroad, between Terre Haute and Indianapolis, and they pronounced the coal superior to any they had seen for the melting of iron in forges, &c. We have some excellent coal from near Rockville, Park county, about twenty miles north of this city, which yields 3.85 ft. to the lb., with good coke, but being three miles from the railroad, and but imperfectly worked, with during the winter almost impassable roads, we cannot get a supply. In ten or fifteen years these various mines will be opened up—forges, rolling mills, &c., will be established here, and thus make this section of country the center of an immense trade in all kinds of mechanical and agricultural implements for the supply of the valley of the Mississippi. I have no doubt but that the gas coal spoken of above, when the mines shall be properly and systematically worked, will supply a coal which will yield a larger quantity to the pound.

Yours truly, G. R.

## THE AUBIN WOOD GAS PROCESS.

We get the following information from a private let-

ter to us, and believe it of interest enough to lay it before our readers.

"I can adapt our system to a bench of long retorts, set exactly as coal gas retorts are set; in truth, the retorts can be the same, except they are divided into two compartments and are charged from both ends—that makes the compartments, say 4½ feet long, the whole retort being 9 feet long, as usual for coal gas retorts. You notice that the compartments being short, it is easy to adapt our system to them—it is done thus: We have chargers in the form of cylinders, (instead of being round as in our ordinary works,) say 20 inches long and like our other chargers open *only* on the bottom; we can then put two of these chargers at once in each end of the retort and change them when necessary, as easily as a charge of coal is now drawn.

The advantage of such a bench is, that it combines the admirable method of heating used in coal gas works, with our process and charger arrangement, whereby all the vapors are confined to the heated surface of the retort instead of being in a mass, as in coal gas retorts. By using some wood with the charcoal, the latter would also make fuel enough to run the works. Of course the above arrangement is only for works running night and day; for works running occasionally, as is the case for factories and small villages, our other works are the only ones which will answer.

I have thought it best to call your attention to the arrangement above proposed, as it will remove all objections which might be urged by inexperienced persons against our present works. It is in reality a coal gas bench with our process and charger *added*—therefore if the parties hereafter desired to change to coal gas works, it could easily be done with very little expense. They never will, of course, but the knowledge that it can be done gives confidence.

In this bench we would use wood in the chargers, of course, as the gas making material."

Very truly yours, H. Q. Hawley.

## GAS EXPLOSION.

A fearful and fatal explosion of gas has occurred at Liverpool, England. A warehouseman named Bowen, in order to discover whether a strong smell of gas or foul air coming from a sewer in the adjacent yard arose from escape of the gas supplying the warehouse, went with a lamp to the yard, and applied it to the iron plate covering the entrance of the sewer. An explosion took place, and an immense sheet of flame shot up to the height of 15 ft. or 16 ft., and blazed for a few seconds. The iron plate or covering was blown into fragments, one of which struck Mr. Bowen on the back part of the head, inflicting a fatal wound. Several other persons were also injured. The pavement was blown for a distance of 60 or 70 yards, the boulders composing it being scattered about in all directions. It is a singular and scarcely credible circumstance, in connexion with this accident, that Mr. Bowen not only lectured on chemistry, in his leisure evenings, but had made arrangements to deliver a lecture on gas, with illustrative experiments, at Birkenhead, the same evening. His conduct was just about as sensible as if a dealer in gunpowder were to thrust a red-hot poker into a barrel to see whether it contained gunpowder.

---

A company has been organized in London, by gentlemen intimately connected with Brazil, called the "Rio de Janeiro Gas Company," for the purpose of acquiring two concessions for lighting that capital with gas. These concessions, which grant a monopoly until 1879, have been worked by a Brazilian company, which is said to have realised good profits. In 1863 the net profit was £64,500, and in 1864, £65,000. It is proposed to purchase the privilege for the remainder of the term, with all the works and contracts; and for this purpose subscriptions are invited for the capital required, which is £600,000, divided into 30,000 shares of £20 each, all to be paid up by the end of June.

---

On Whitely creek, near Mapeltown, Ohio, about one mile from the Monongahela river, an excellent show of oil has been struck at a depth not stated.

## RULES TO OBSERVE WHEN YOU TAKE A GUN IN YOUR HAND.

Whenever you take a gun in your hand, inquire if it is loaded. Should there be no person to answer you, if the gun is a muzzle-loader, place the butt on the ground, outside the left foot, having previously fixed the hammer at half cock, and holding the muzzle in a forward direction, clear of your person, draw the ramrod, and insert it gently into the barrel. If there is a charge in, you will feel the "thud" of the ramrod upon it, while the rod's upper end will project about three fingers'-breadth above the muzzle of the gun. Should the piece not be loaded, the ramrod will sink right down, and the broad metal end will soon announce the empty barrel by the tap against the breech plug Never handle a loaded gun except for the purpose of discharging it; and never at any time—either in jest or earnest—point a gun, loaded or unloaded, at any living thing you don't deliberately intend to kill.

---

## THE FIRST NEEDLES.

Needles were first made in London by a negro from Spain, in the reign of Queen Mary, about 1554. He died, however, without imparting the secret of his art, and it was lost till 1565, when it was recovered in the reign of Queen Elizabeth. It was one Elias Growse, a German, who taught this useful art to the English. The manufacture of needles was literally lost to England for nearly a century; but about 1650 it was recovered by Christopher Greening, who settled in Long Crendon, in Buckinghamshire. The reputation long enjoyed by Whitechapel needles points out the particular locality in London where the manufacture was once carried on. At the present time the largest number of needles are made at Reddich, in Worcestershire; at Hathersage, in Derbyshire; and in and near Birmingham. The product of Reddich and its neighborhood alone is very great. Even several years ago it reached 100,000,000 needles per week.

---

## COLORADO MINERAL DEVELOPMENTS.

The great national development in the United States, during the next ten or twenty years, we believe, will be the production of petroleum and in the gold and silver mining of Nevada, California and Colorado. The undiscovered wealth in gold of the latter region, lying hid in her mountains, according to the most trustworthy accounts, is marvellous. Many persons, experienced in mining, predict that the $15,000,000 a year which she now yields, will in a few years be increased to $100,000,000. The Colorado mines already seem richer than do the best California, and the richest veins of gold, it is thought, are not yet reached. The best districts will soon be within a week of the Missouri river for the traveller; and the time is doubtless not far distant when a railroad will lessen the separation between our cities and the Colorado Mountains to a journey of comparatively moderate extent. The wealthiest mining community on this continent will be covering the slopes of the Rocky Mountains with thriving villages and towns.—*Pittsburg Chronicle, March 7.*

---

## TEMPERATURE OF THE EARTH AND THE AIR.

M. Becquerel has reported to the Academy of Sciences at Paris the results of his observations of the temperature of the earth from one to thirty-six metres below the surface, and the temperature of the air to the height of 21.25 metres, in 1861-2. In regard to the former question, he states that the temperature goes on increasing from the depth of one metre downward, except at eleven metres, where the temperature was 0·102° above that at sixteen metres. This anomaly he attributes to some geological cause; adding that at no depth between one metre and thirty-six metres is the temperature really constant. The distribution of heat in the crust of the globe cannot be reduced to an unvarying law, in consequence of the dissimilarity of the strata which compose it, and which also are more or less permeable by water. The observations of the air in 1861, 1862, 1863, and 1864 have given the mean temperatures at the height of 1·33 metres, 10·542° centigrade; at 16·2 metres, 10 975°; at 21 metres, 11·556°. It is remarkable that at six o'clock A. M. the mean temperature at all the above-mentioned heights was nearly the same. M. Becquerel expresses an earnest desire that observations of the temperature of the earth at the depth of at least 200 metres should be made, in order to settle various chemical and physical questions.

---

The attempt of the Suez Canal Company to find laborers for their work from the pilgrims who annually leave Morocco for Mecca, is said to have been a failure. By offering a free passage and facilities for reaching Mecca in exchange for a year's labor, at fair wages, at the canal, it was supposed that the honors of the Mecca pilgrimage would be placed within reach of those who were to poor to undertake the pilgrimage upon their own means. But the expectation that they would gladly avail themselves of the offer has been disappointed. We are told that the Moors are possessed by the singular notion that the waters of the Red Sea will sweep over the canal, and drown all those engaged in the work. The idea, one would think, must have sprung from the tradition of the destruction of Pharaoh's host, the memory of which would be kept alive among the masses in Morocco by the Hebrew portion of the Sultan's subjects.

---

The soundings effected with reference to the new Transatlantic cable, says the Paris Galignani, have enabled comparisons to be made of the different depths of the sea. Generally speaking, they are not of any great depth in the neighborhood of continents; thus, the Baltic between Germany and Sweden is only 120 feet deep, and the Adriatic between Venice and Trieste 130. The greatest depth of the Channel between France and England does not exceed 300 feet while to the southwest of Ireland, where the sea is open, the depth is more than 2,000 feet. The seas to the south of Europe are much deeper than those in the interior. In the narrowest part of the straits of Gibraltar the depth is only 1,000 feet, while a little more to the east it is 3,000. On the coast of Spain the depth is nearly 6,000 feet. At 250 miles south of the Nantucket (south of Cape Cod) no bottom was found at 7,800 feet. The greatest depth of all are to be met with in the Southern Ocean. To the west of the Cape of Good Hope 16,000 feet have been measured, and to the west of St. Helena 27,000 feet. Dr. Young estimates the average depth of the Atlantic at 25,000 feet, and of the Pacific at 20,000.

---

## ARTIFICIAL MARBLE.

We have heard of a process for producing artificial marble. Geologist tell us that one sort of real marble is nothing but chalk, through which an intensely-heated stream of carbonic acid has passed. The new process consists in heating powdered limestone and chalk in a porcelain vessel, from which atmospheric air is excluded. This seems simple enough; but whether it can be economically applied on the great scale, remains for further experiment. A method of coating wood with a varnish as hard as stone has been recently introduced in Germany: the ingredients are forty parts of chalk, forty of rosin, four of linseed oil, to be melted together in an iron pot. One part of native oxide of copper, and one of sulphuric acid, are then to be added, after which the composition is ready for use. It is applied hot to the wood with a brush, in the same way as paint, and as before observed, becomes exceedingly hard on drying.

---

Discovery of a Mine of Quicksilver.—A mine of quicksilver has been discovered in the town of Valparaiso, in the Quebrada de San Augustin. As it is situated under several houses, its value has not as yet been fully estimated.

---

In one of the processes of steel pen making done by females at Birmingham, a quick worker will cut out in one day of ten working hours, 250 gross, or 36,000 pens, which involves 72,000 distinct motions of the arm, two in every second.

## FIRE FROM DARK RAYS.

A striking discovery and singularly interesting experiment by Professor Tyndal, are mentioned in late London papers. A short time ago, he demonstrated that an opaque solution of iodine would intercept the luminous rays of a highly heated body, but allow the obscure rays, or heat-rays, to pass. The same effect takes place with pure bisulphide of carbon, so that with these two substances an experimentalist can detach one set of rays from the other, although they are issuing at the same time from the heated substance.—This power of separation enables him to experiment on one set or the other at pleasure, and it is Professor Tyndal's experiments on the obscure rays which we are now to notice. He produces an electric light, and of course heat, by a powerful battery; then placing his solution of iodine at a proper distance, the luminous beam was cut off; but the intolerable temperature felt on placing his hand at the focus, proved that the heat-rays were still passing. To quote the Professor's own words: "Thin plates of tin and zinc were placed successively in the dark focus, and speedily fused; matches were ignited, gun-cotton exploded, and brown paper set on fire. It is extremely interesting to observe in the middle of the air of a perfectly dark room a piece of black paper suddenly pierced by the invisible rays, and the burning ring expanding on all sides from the centre of ignition."

In October last, Professor Tyndall repeated the experiment with sunlight instead of artificial light. He placed a hollow lens, filled with the iodine solution, in the sun's rays, and took precautions to prevent the passage of light even around the edges; the heat rays alone passed through. Although the atmosphere was somewhat cloudy and smoky, the focus of the lens was burning hot. The same effects of burning and exploding, with the addition of explosion of gunpowder, took place as in the experiment above mentioned. "In fact," remarks Professor Tyndall, "we had in the focus of the sun's dark rays a heat decidedly more powerful than that of the electric light similarly condensed, and all the effects obtained with the former could be obtained in an increased degree with the latter." We foresee that out of these experiments further results will be achieved, and unusually interesting lectures at the Royal Institution.—*Eclectic Magazine.*

## RICH STRIKE.

A correspondent of the San Francisco *Ming Press*, from El Dorado county, writes the following:

"A few days since, near Georgetown, an old miner, with only twenty-five cents in his pocket, made a rich strike in quartz, from three pans of which he took $500. Mr. Orr, proprietor of the stage line between Folsom and Georgetown, is my informant. He assures me that he saw the first pan that was washed out, and that it was the richest one he ever saw, and that there was plenty more in sight. The range of country is the same as that which passes through Nevada and Grass Valley."

Our correspondent further informs us that the Rhodes Mill is now running twenty stamps, and crushing from twenty-five to thirty tons of rock each 24 hours, with an average yield of fifteen dollars per ton. They are now down one hundred and seventy feet.—They amalgamate with the copper shaking-table, employing the second set which has been put up in the State. It is claimed that they work well. The mines of that region seem to be looking up considerably.

## MINERALS FROM SALT LAKE.

The Stockton *Independent*, of a late date, says that Dr. Holden, of that city, has received a box from Salt Lake City, containing one hundred and thirty-nine pounds of auriferous rock, embracing specimens of salt, copper, antimony, iron and lead ores, etc.; also, sulphurets of the various metals, carbonate of copper, and specimens of petrified wood. These samples were sent by Dr. Reid, formerly of Stockton, at present residing at Salt Lake. Accompanying these specimens were bars of silver and lead from Rush Valley Smelting Works. The various rocks represented the ores found at Cedar Mountain, Jordan and St. Louis mines (carbonate of copper,) Vedette Copper mine, and Rush Valley Silver Mine; also silver ores from Sublett's Cut-off, Sonora, Russian River, Dacotah, Washita Mountain, Empire, Lone Star, Lady Grant, and many other mines. Some of the silver ores are marked as yielding seven hundred dollars per ton; and among the contents of the box are beautiful samples of volcanic rock. These evidences of the mineral wealth of the places they represent are valuable acquisitions to any cabinet.

---

Lead.—The demand of lead for consumption has been very steady during the past year. The importations for the year amount to 27,900 tons—an advance of 7,000 over the average of the three previous years. The receipts of galena, during the same time have been 1,300 tons—less than the average of the three previous years. During the last year government has consumed about one-half of the entire delivery of lead: the consumption for ordinary purposes showing a large falling off. The price of lead during the last nine months has been below the cost of importation, and it did not advance at any time during last year in proportion to gold. It opened on the 1st of January at 10¼c., advanced to 16½c. in July, declined in September to 13½c and since October it has fluctuated between 14½c. and 15½c. in currency.

---

Fresh Beef from Salt Junk.– If a piece of salt meat be put in water either in a vessel the bottom of which is made of a bladder, or in a bag made of untanned skin, and this placed in another vessel of water, the salt will be gradually drawn out of the meat, and pass through the parchment or skin, but the juices of the meat will be left behind in the first vessel. Brine in the beef barrel contains a considerable portion of the juice of the meat, which may be saved by filling the inner vessel with it; the salt from both brine and meat will pass through the membrane. The process is to be continued until salt enough is extracted to leave the meat and liquor palatable. This method is known and practised upon by sailors in the Mediterranean Sea, who inclose their salt junk and a portion of the brine in a water skin; that is, a bag made of goat skin for holding water. This is attached to a line, thrown overboard, and towed through the water until the meat and liquid are freshened to the same degree as sea water. The liquid is then used for soup, and the meat cooked as wanted. A similar operation may be made very useful by soldiers in camp where fresh meat is unobtainable, and families where salt junk forms the staple diet several months in the year.

---

Mr. Ruskin has contributed to the Geological Magazine some notes on the shape and structure of some parts of the Alps, with reference to the vexed question of denudation now pending between the advocates of the fracture and erosion theories, and appears to take up a middle course. He says that "the more we examine the Alps from sufficiently dominant elevations, the more the impression gains upon us of their being rather one continuously raised tract, divided into ridges by torrent and decay, than a chain of independent peaks; but this raised tract differs wholly in aspect from groups of hills which owe their essential form to diluvial action."

---

The quantity of quicksilver produced this year at the New Almaden mine, the only one worked to any extent, was twenty six thousand flasks of seventy-five pounds each, the whole valued at $1,527,000, against twenty-six thousand flasks last year, valued at $966,000.

Of the four hundred and fifteen silk manufactories of the United States in 1860, Connecticut had the largest number, one hundred and forty-four; and California the smallest, three; while New Jersey had one hundred and thirteen. New York, eighty; Pennsylvania, twenty-eight; Massachusets, thirty-six; New Hampshire, seven, and Kentucky four. During the last four years California has entered quite largely into the business. This State has facilities for silk culture and manufacture not enjoyed by any other. Her soil is fitted for the culture of the mulberry, and her climate to the rearing of the silk-worm. Besides which, there are among her population thousands of Chinese who are skilled workers in silk, whose labor can be obtained for as small a sum as from three to five cents per day. If necessary, California might produce silk fabrics for the world's supply, and the trade prove as productive as her mines.

---

One stormy evening lately, a lady in Glasgow was sitting at the kitchen fire with an infant on her knee wrapped in a worsted shawl. Suddenly, a ball of fire, about the size of a child's head, came down the chimney, passed over her right arm and cheek, ascended to the ceiling, and exploded with great noise, extinguishing all the lights in the house. The lady's arm, cheek, and right ear were severely burned, and although the shawl about the baby was so singed or burned that it fell in pieces, yet the infant escaped uninjured. Although the burn on the arms and face of the lady were severe, she is doing well.

---

An important Mineral Discovery.—About fifteen miles above St. Joseph, near the Missouri river an extensive body of very peculiar clay has been discovered. When first taken out it can be easily cut into any shape desired, and a surface made as smooth as glass. In a few hours it hardens, becomes firm as a rock, and has a whiteness equal to snow. In Texas and Utah this kind of clay is used for building purposes and is exceedingly beautiful.

---

Copper.—The present annual consumption of copper in this country is about 13,000 tons; of which amount about one half is derived from the Lake Superior mines. The balance is derived in ores from California, Chili, Cuba, etc. On the first of January, 1864, copper was quoted in Boston and New York at 39c. It advanced with the rise of gold to 56c in July, declined to 47c in September, and has since fluctuated, with the fluctuations of gold between 48c and 50c.

---

A Novelty Indeed.—Among the objects displayed at the South London Exhibition was a rough model of a candlestick, which, the inventor says, possesses the following extraordinary advantages: "Indicates the time after the candle is partly consumed; repeats the hours over again if required; snuffs itself out, rings you up, opens your door, boils a pint of water, by a pot which boils at both ends, to make a cup of tea or coffee, and rings a bell when the water boils; rings the servant up, and drags off the bed-clothes, and pulls her out of bed if refusing to get out at the proper time."

---

Size of Water Atoms.—Can we compute the size of globules of steam, as they are formed at the bottom of a vessel, when the heat is graduated; and assume that an atom of water is twelve times less in diameter than the minutest globule of steam?

---

A company, known as the Sherman & Barnsdall, has secured some of the most valuable property on Oil Creek, and its stock is rapidly selling at par.

THE MINING & PETROLEUM STANDARD AND AMERICAN GAS-LIGHT JOURNAL, is published at Tribune Buildings, No. 1 Spruce st. on the 2d and 16th of every month, and is a recognized official organ of—

LIGHT, HEAT, MINING INTERESTS.

PETROLEUM, WATER-SUPPLY, AND SCIENTIFIC SUBJECTS GENERALLY.

JAMES W. BRYANT, EDITOR AND PROPRIETOR.

W. S. SHERMAN, PUBLISHER.

PROF. C. ELTON BUCK, CONSULTING CHEMIST.

SUBSCRIPTION—Three dollars per annum in advance.

ADVERTISEMENTS.—One dollar per inch in column for each insertion. Large space or long time by special contract.—Payable in advance.

☞ All communications to be addressed to "The Editor," No 1 Spruce Street, New York.

AGENTS.

NEW YORK—JOY, COE & Co., No. 1 Spruce street.

PHILADELPHIA—JOY, COE & Co., No. 441 Chestnut st. cor. 5th.

*Germany*.....B. WESTERMAN & Co., of New York.

*Great Britain*....TRUBNER & Co., 60 Paternoster Row, London.

*France*. ..... LE JOURNAL DE L'ECLAIRAGE AU GAZ, 25 Boulevard Poissonnière.

☞ *Private Office, No.* 111 *Pearl street.*

☞ *Publishing Office, No.* 1 *Spruce street.*

# The Mining and Petroleum Standard

AND

# AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT, . . . . . EDITOR.

MONAY, APRIL 3d, 1865.

☞ Mr. Wm. Davidson, of the firm of E. V. Haughwort & Co., 488, 490 and 492 Broadway, has received the appointment of Inspector of Gas Meters for the State of New York. His office for the transaction of business connected with that appointment, is at the above address.

Atlas of the Oil Regions of Pennsylvania, from actual survey, under the direction of E. W. Beers, C. E.; assisted by Beech Nichols, J. M. Beers, A. Leavenworth, C. S. Peck, C. A. Curtis, and Geo. Stewart—with a few facts relating to Petroleum historically, scientifically and commercially reviewed, by Iram C. Michels, Editor of the Philadelphia Coal Oil Circular and Petroleum Price Current. Published at 43 John street.

This is a most extensive and elaborate got up affair, and has required, and received, a vast amount of labor and intelligence to bring it out. It is, certainly, a very valuable work, and should be in the possession of every man who is interested in Petroleum; as a reference it is the most indisputable authority, and the thirty-six maps which are beautifully and artistically colored, are so plainly designed, that "he who runs may read." As a work of merit, and art as well, we commend this Atlas to all who seek information on the subject of oil land and their location in Pennsylvania.

We have received from Messrs. Harris & Brother, some certificates given by most respectable and practical persons to them, showing the excellence of their meters. These certificates are appended to their advertisement in our journal, and we call attention thereto. Messrs. Harris & Brother are among the earliest manufacturers of Gas Meters and it is very creditable to them that they have sustained so good a reputation for so long a time.

## THE TAX UPON CRUDE PETROLEUM.

We take the following well timed and truthful remarks from the American Exchange and Review, for March:

At this period petroleum is the subject of much special legislation, and the trade is moving to protect itself from statuaory burdens. A congressional project has been started to tax the crude article 6 cents per gallon, and consequently adding still more per gallon to the price of the refined oil—according to reduction in rectification—in addition to the heavy duty already imposed. As so much of petroleum is exported, the object is to make foreign consumers contribute to the wants of the Federal treasury. This will be found to be paying a high price for a small advantage. A virtual export duty would be imposed upon a commodity which has in its export demand the great incentive to production. Petroleum is not one of those products of which merely a small surplus is shipped to foreign markets.—Our oil reservoirs extend over a vast domain, perhaps they can supply the world, but we are not without competition in the markets we seek. The petroleum wells and deposits of Europe and Asia are acquiring fresh importance and the British distilleries are beginning to cheapen the manufacture of coal and peat oil. The proposed tax would hamper the American producer, and be a premium upon the foreign production, and would bring about again, just as petroleum is becoming the greatest commercial interest on the continent, the depression of 1861.

At a recent meeting of the Academy of Sciences at Paris, M. Becquerel presented, in the name of the constructor, M. Richer, a new electric machine, the plate of which was formed of sulphur. This modification is said to possess the very great advantages of producing negative electricity in great quantity, and of being worked in an atmosphere filled with watery vapor. At the same meeting, M. Fizeau reported some observations of M. Jansen on the bands of the spectrum which tend to prove that the rays termed telluric, which are due to the interposition of the atmosphere, diminish in intensity in proportion as we ascend to an elevated spot, a portion of the rays being absorbed by the atmosphere.

The Russian petroleum discoveries have led to the grant of a concession by the Czar to a French company, organized by Marquis la Rochejaquelin for the utilization of the mineral oil in the production of gas, and the lighting of St. Petersburg on a more economic system than that now in operation.

Fitzhugh Ludlow, in his Overland route to California, found between Utah and the Humboldt Mountains, a large desert composed, as he says, "of sand of snowy alkali," and what is more remarkable he informs us that "in its crudest state the alkaline earth of the desert is sufficiently pure to make violent effervescence with acids. No elaborate process is necessary to turn it into commercial soda and potash."

The annual report of the commissioners of patents show that 5,020 patents were granted during last year—4,862 to citizens of the United States. The total receipts were $249,919; the total expenditures $229,868. The patent fund on hand at the commencement of the present year, adding the surplus of last year, was $55,502.

Great as you may be, the cradle was your world once, and over it, the only horizon you beheld, bent the heaven of a mother's eyes, as you rocked in that little barque of love.

Of the different countries from which we draw materials for making perfumes, we learn that the south of France yields the most bountifully the sweetest of all flowers—the rose, jessamine, and orange; and that Nice, so famous for its lengthy hotel bills and querulous old maids, is also especially celebrated for its violets; Italy gives us bergamot, orange, and lemon; Turkey the far famed attar of roses; India supplies cassia, cloves, sandal-wood, and patchouli; and China the much abused, yet indispensable, musk.

The Cronstadt Messenger describes a rare phenomenon witnessed there, when two parhelia, or false suns, were seen flanking the real sun right and left, on a line parallel to the horizon. Between the sun and the two parhelia the light assumed all the shades between a yellowish green and a bright red, while streaks of white light, not unlike the tails of comets, seemed to issue from the parhelia. This phenomenon occurred on a remarkable fine day, the sky was perfectly clear, there was no wind, the thermometer stood at about five degrees Fah., and the barometer at 30 inches.

## PETROLEUM ITEMS.

The Mercantile Company have opened a well which is pumping 25 bbls.

The Benchoff Run Company have struck a 75 bbl. flowing well.

The Craft well, on the premises of the Commonwealth Company, is steadily increasing, and now flowing at the rate of 350 bbls. Competent oil men, who have visited this well, are of the opinion that it will rival the Coquette well.

There have been a number of smaller wells struck during the last week, but those mentioned above are the only important ones.

The subscription books of the Philadelphia National Petroleum Company was opened on Monday last, at No. 30 Broad street, where full paid stock was issued at 25 cents per share.

The Pacific Coast Petroleum Company have a perpetual lease of 75,000 acres of rich oil territory. Their capital stock is $5,000,000.

Considerable interest has been manifested by the public in the stock of the New York, Philadelphia and Baltimore Consoliadted Petroleum and Mining Company, and a large number of shares were sold at the several offices.

Muddy creek, Ohio, has just given in its first contribution to the oil production.

The Curlo well, the first on this stream, is in the immediate vicinity of Carmichaeltown. On the 6th of Febuary oil was struck at a depth of 600 feet on the White Rock. The good citizens of Carmichaeltown getting jubilant, carried the oil in buckets around the streets. The other within 500 yards of the first, is down only 200 feet, and is already yielding the black gas in abundance.

A few days since the Swisher well, five miles below Fairmount, on the Monongahela river suddenly broke gas, throwing water several feet above the mouth of the well. After a short time the pressure of gas somewhat abated, but at last accounts the water was still boiling over the mouth of the conductor at a furious rate.

Lately an old salt well a few miles from Clarksburg was re-opened after having been closed for many years. As soon as the earth which covered the top of the well had been removed, and the plug taken out, a large stream of gas mingled with petroleum issued from it. The indications are that there is oil in great abundance. This well is on the west forke of the Monongahela river.

Sydney papers state that a new gold field has been discovered near Rockhampton, Australia.

## PETROLEUM REVIEW.

March 16,—Crude is exceedingly dull, and prices are lower, and closes flat at 35 cts. Refined in bond is offered at 56 cts., but there are no buyers above 54 cts. Refined free is also lower, with sales of 200 barrels at 76 cts.

March 17,—Crude is again lower and very dull, sales of 500 bbls. at 33 cts. Refined is inactive and nominal at 55 cts. for bonded, and 75 cts. for free.

March 18,—There has been an improvement in the demand for Crude to-day, and prices advanced, owing to some difficulty at the wells, preventing shipments; sales at 35½ to 36 cts. Refined is inactive but firm at 55 cts. for bonded and 75 cts. for free.

March 20,—Crude is a little firmer, but prices are without change; we quote at 35 to 36 cts. Refined is quiet at 55 cts. for bonded, and 74 cts. for free.

March 21,—Crude is firm at 35 to 36 cts. Refined are easier; we quote at 54 cts. in bond, and 74 cts. for free.

March 22,—The market is dull at 34 cts. for Crude, 54 to 55 cts. for Refined in bond, and 73 to 74 cts. for do. free.

March 23,—We have had a very irregular and unsettled market for Crude since this day week; the continued downward tendency in gold and the more liberal arrivals had a very depressing effect, and prices fell off to 33 cts. per gallon, at which rate but few buyers could be found. On Saturday, however, a good speculative inquiry sprung up, the market was very much excited, and prices advanced, owning to the freshet on the Oil Creek, closing firm; Refined in bond has been only in limited demand, has been very irregular, and has largely declined; do. free also was heavy, and declined; the market for Crude closes quiet, with sales of 250 bbls. at 34 cts. Refined in bond and free are nominal at 54 to 55 cts. for the former, and 73 to 74 cts. for the latter.

March 24,—The market is a shade firmer; sales of Crude at 33 to 34 cts. Refined in bond at 52 to 53 cts. and Refined free at 72 to 73 cts.

March 26,—Is firmer and in moderate demand at 34 cts. for Crude, 53 cts. for Refined in bond, and 73 cts. for do. free.

March 27,—Is dull at 34 to 34½ cts. for Crude, 53 to 54 cts for Refined in bond, and 72½ to 73 cts. for do. free.

March 29,—The market for Crude has been very dull since our last; early in the week a firm feeling prevailed, but toward the close the market became heavy; the price to-day is 33 to 34 cts. Refined has been only in moderate demand, prices have fluctuated, and at the close are heavy at 53 to 54 cts. for bonded, and 72 to 73 cts. for free.

March 30.—Crude is moderately active; sales of 1,500 bbls. at 33 cts. Refined are dull and prices are nominal at 52 cts. for bonded, and 71 to 72 cts. for free.

April 1,—The market is dull at 53 cts. for Crude, 52 cts. for Refined in bond, and 72 cts. for do. free.

## NEW YORK MINING EXCHANGE.

NEW YORK, April 1st, 1865.

| | Bid. | Asked | | Bid. | Asked |
|---|---|---|---|---|---|
| ***Copper Stocks.*** | | | ***Gold Stocks.*** | | |
| Aztec | 7⅛ | 9 | Benton | 1 | 1¼ |
| Bedford | 1 | 1⅛ | Consol'd Gregory | 25 | 28⅞ |
| Boston | 4⅛ | 5¾ | Corydon | — | 3 |
| Caledonia, A. P. | 10 | 12 | Gunnel | 3¾ | 4⅛ |
| Canada | 3½ | 4 | Great Western | — | 8 |
| Carp Lake | 3 | 5 | Hope | — | 9 |
| Central | 65 | 70 | Isaac's Harbor | ⅝ | ¾ |
| Columbian | — | 24 | Manhattan | — | 9 |
| Copper Falls | 34⅛ | 38 | Mariposa | 44 | 44⅛ |
| Clifton | — | $1 | Montana | ⅛ | 1 |
| Dacotah | — | 5⅛ | New York | 2⅛ | 3 |
| Derby | ⅞ | 1⅛ | N. Y. & Nova Scotia | ⅛ | 1¼ |
| Douglass | — | — | Quartz Hill | 9¼ | 10 |
| Evergreen | 18¼ | 20 | Quicksilver M'g Co | 81 | 82 |
| Flint Steel River | 12 | 13⅛ | Rocky Mountain | — | 10⅛ |
| Frue | 2¾ | 5 | Smith & Parmelee | 7 | 12 |
| Grand Portage | — | — | | | |
| Hancock | 12⅛ | 14 | ***Coal Stocks.*** | | |
| Hamilton | — | 6 | American | 98 | 100 |
| Hilton | 5 | 6 | Ashburton | — | 25 |
| Hudson | 1 | 2 | Central | 62 | 65 |
| Huron | 32 | 33 | Cumberland | 61 | 62 |
| Indiana | 8¾ | 9⅛ | Del. & Hud. Canal | 206 | 208 |
| Isle Royale | 20 | 20⅛ | *Hampshire & Balt. | 104 | 110 |
| Keweenaw | — | 6 | Pennsylvania | 213 | 215 |
| Knowlton | 7 | 10 | | | |
| Lafayette | 1 | 2 | ***Lead Stocks.*** | | |
| Manhattan | — | — | Bucks County | ⅝ | ⅞ |
| Mendota | — | — | Clute | 1⅛ | 1⅞ |
| Merrimac | 4¾ | 5⅛ | Erie | — | 20 |
| Minnesota | 33 | 37 | Macomb | 3⅛ | 5 |
| New York, A. P. | 2 | 3⅛ | Plancentia Bay | 1⅛ | 1⅜ |
| N. J. Consolidated | 4 | 4¼ | Sussex | ⅜ | ⅞ |
| Norwich | — | 6 | Wallkill | 3½ | 6 |
| Ogima | 5 | 6¾ | | | |
| Ontonagon | 3 | 4⅛ | ***Iron Stocks.*** | | |
| Penn | — | 11⅛ | Copake | 8 | 10 |
| Providence | 1¾ | | French Creek | ⅞ | 1 |
| Quincy | 96⅜ | | Teal Lake | 4⅜ | 6 |
| Reliance | 1⅛ | | | | |
| Rockland | 12¾ | | ***Miscellaneous.*** | | |
| Superior | 8⅛ | | Rutland Marble | 17 | 20 |
| Sharon Consolidated | — | | * *Ex. div.* | | |

THE GOULD & CURRY MINE.—The total number of men employed, at present, in and about the mine is 215; extracting ore, 79; prospecting, 11; accessory work, 59; on improvements, 20; carpenters, 25; blacksmiths, 7; outside laborers, 14. The ore taken out daily, amounts to about 130 tons, and averages from $90 to $500.

A gas-engine has recently been worked in London; it consumes 70 cubic feet of gas per hour per horse-power, costing 3d. per hour. Coal costs 1d. per hour. It is thought that for a small and intermittent power, where a boiler is objectionable, the gas-engine may be eligible.

PRISMATIC GAS.— There is a curious new kind of gas-illumination now exhibiting at 616 Broadway. It it the first of the sort done in this country. We understand that Messrs. N. Defries & Son, of London, are the inventors, and that it has been patented here by Mr. E. Defries. The name given to it is the Prismatic Gas-Illuminator.


## ADVERTISEMENTS.

**CHASE & CO.,**

*New York and Philadelphia Ornamental Iron Works.*

**GARDEN ADORNMENTS,**

VASES, FOUNTAINS, STATUARY, ARBORS, RUSTIC CHAIRS, SETTEES, TRELLISSES, &c.

**Cemetery Embellishments,**

*URNS, IVY CROSSES, GRAVE BORDERS, WIRE ARCHES, BOQUET VASES, &c.*

**Wire, Cast Iron and Bronze Railings,**

For enclosing Lots, Public Squares, &c.

☞ *Iron Furniture, Bedsteads, &c., &c.,*

The largest variety in the United States.

*STABLE FIXTURES,*

RACKS, MANGERS, &c.

**No. 524 Broadway, New York,**

Opposite St. Nicholas Hotel. [127

A SITUATION IS WANTED

As Superintendent of Gas Works, by an experienced and capable Gas Engineer, who will give satisfactory references as to his integrity and ability. He has had six years practical experience in the management of Coal and Resin Gas Works. Address,

R. HORTON, care American Gas Light Journal, No. 1 Spruce street, N. Y. 126.

AMBROSE SPENCER GILCHRIST.
(LATE CAPT. U. S. V.,)
CIVIL, MINING
AND ARCHITECTURAL ENGINEER,

No. 200 BROADWAY, Office 12.
New York.

Surveys Construction of Railroads, Canals, Water and Gas Works, Water Powers, &c, &c.

MAPS, PLANS, PROFILES, SPECIFICATIONS, AND ESTIMATES.

Mining and Architectural Engineering in all its branches.

Particular attention paid to the preperation of drawings and models, and obtaining of Patents.

U. S. MAIL LINE FOR CALIFORNIA,

via Panama, under convoy of a United States war steamer throughout the Atlantic voyage.

For freight or passage apply to

D. B. ALLEN, No. 5 Bowling Green

FOR SALE.—One 12 Hose Horizontal Steam Engine. Address P. O. Box 781, Albany, N. Y.

**Gas Fixtures and House Furnishing GOODS.**

**E. V. HAUGHWORT & CO.,**

**No.'s 488, 490 and 492 Broadway,**

*Corner of Broome street, New York,*

Manufacturers and dealers in

**Chandeliers and Gas Fixtures.**

Have a large and very choice assortment of GAS FIXTURES, which they offer at reduced prices, in view of the recent fall in gold. Their

*Glass and Fine Gilt Chandeliers, are of entirely new designs,*

And well worthy of attention by those who wish to purchase

☞ *Fine Fixtures for their Houses.*

They also offer a fine collection of

*Real and Composition Bronze Clocks, Mantel Setts and Figures, Parian Statuary, Sterling Silver and Plated Ware, French, China and English Stone Ware,*

*DINNER, TEA and TOILET SETTS, GLASSWARE, MIRRORS and CORNICES.*

☞ All Imported goods sold in conformity with the price of gold.

Office of Wm. Davidson, Inspector of Gas Meters for the State of New York, at the above address. [127

**WATER AND GAS PIPE.**

*The Boston Bituminized Pipe Company,*

Are now manufacturing and prepared to take orders, for their PATENT PIPE, (from 2 to 12 inches in diamter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four month's duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of O. E. Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments. I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,

Boston Bituminized Pipe Co.,
127] No. 2 Pearl st. House, Boston.


ERIE RAILWAY.

TRAINS LEAVE FROM FOOT OF CHAMBERS STREET,
via PAVONIA FERRY:

A. M., Day Express, for Canandaigua, Rochester, Buffalo, Salamanca and West. Connects at Buffalo with Lake Shore and Grand Trunk Railways, and at Salamanca with Atlantic and Great Western Railway.

A. M., Milk and Way Train, Daily to Otisville.

8:30 A. M., Express Mail, for Buffalo, connecting with Lake Shore Railway.

4:00 P. M., Way Train, for Port Jervis and Newburgh.

5:00 P. M., Night Express, for Canandaigua, Rochester, Buffalo, Salamanca and West.

6:00 P. M., Lightning Express, Daily, for Canandaigua, Rochester, Buffalo, Salamanca, Dunkirk and West. Connects at Buffalo with Lake Shore and Grand Trunk Railways, and at Salamanca with Atlantic and Great Western Railway.

8:00 P. M., Emigrant Train, Daily, for Buffalo, Salamanca, Dunkirk and West.

## Carrington & Co.'s
GENERAL
PURCHASING
AGENCY,
In Connection with all the Expresses,
**No. 40 Broadway,**
NEW YORK.

***Estabished 1854.***

**Purchases to order ANY article wanted from New York, (or from Europe,) for ladies' or gentlemen's use or wear,—comfort or luxury—from a cameo to a cashmere—a seal-ring to a steam-engine.**

**Goods purchased at current City prices, and forwarded by Express, or as directed.**

**Commission, Five Per Cent.**

***Remittances, with orders, can be made by Express if preferred, as all Express Agents will take orders, receipt for and forward funds, and see to return of Goods.***

SPECIAL CIRCULAR.

The Adams Express Company, appreciating the need of a capable medium connecting with the various Express Lines, through which personal and other orders for goods from this city, can be satisfactorily supplied, do recognize CARRINGTON & CO.'S GENERAL PURCHASING AGENCY as such a medium for filling orders for every description of goods wanted from New York, and commend it to the attention of the public, and of our general and local agents, recommending our agents to extend to it all reasonable aid, by facilitating the distribution of its cards and circulars, and making known the advantages it affords.

ADAMS EXPRESS CO.
By W. B. DINSMORE, Prest.
NEW YORK, June, 1864.

We cheerfully concur in the above recommendation of the Adams Express Company.
AMERICAN EXPRESS COMPANY,
By HENRY WELLS, Prest.
UNITED STATES EXPRESS COMPANY,
By D. N. BARNEY, Prest.
WELLS, FARGO & CO.,
NATIONAL EXPRESS COMPANY,
By J. A. PULLEN
HARNDEN EXPRESS,
By L. W. WISCHESTER, Supt.
KINSLEY & CO.'S EXPRESS,
By E. LITTLEFIELD, Supt.
HOPE EXPRESS COMPANY,
A. D. HOPE, Supt.
BREESE & CO.'S EXPRESS,
By STEPHEN BREESE, Supt
NEW JERSEY EXPRESS COMPANY,
By GEORGE R. DUNN, Supt.

**SCHMIDLIN & DRISCOLL,**
MANUFACTURERS OF
## HALL, STREET & CHURCH LANTERNS,
**Show Window and Street Lamp Reflectors,**
**135 Mercer Street,**
NEW YORK.

**GEO. H. KITCHEN & CO.,**
NEW PATENT
## GAS APPARATUS
**For Country Residences, Public Buildings, &c.,**
FROM $300 UPWARDS.
EVERY DESCRIPTION OF GAS FIXTURES.
**Gas Fitting in all its branches.**
**561 Broadway,**
NEW YORK.

**LAFARGE, & CO.,**
**BROKERS,**
4 WALL ST., (2d floor) NEW YORK,
STOCKS, BONDS,
AND OTHER SECURITIES
**Bought & Sold.**
ON COMMISSION.
LAFARGE, G. I. GERRARD

**The Greatest Improvement yet in the Sewing Machine Art!**

A CURIOSITY WORTH SEEING!

*Please send for circular with sample of sewing.*

These Improved Machines SAVE ONE HUNDRED PER CENT. of thread and silk, and make the LOCK-STITCH alike on both sides.

They require no instruction to operate perfectly, except "the printed directions."

No change in sewing from one kind of goods to another.

And no taking apart to clean or oil.

Our NEW MANUFACTORY is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for BEAUTY and PERFECTION of FINISH are not surpassed by any manufacture in the world.

N. B.—Should any Machine prove unsatisfactory, it can be returned and money refunded.

Agents wanted in counties not canvassed by our own agents.

**Finkle & Lyon S. M. Co.,**
No. 588 BROADWAY, NEW YORK

## PUTNAM'S CLOTHES WRINGER.
IT IS THE ONLY RELIABLE
**Self-Adjusting Wringer.**

*No Wood-work to Swell or Split. No Thumb-screws to get out of order. Warranted with or without Cog wheels.*

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog-wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam Wringer. Test it *thoroughly* with *any* and *all* others, and if not entirely satisfactory, return it

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,
JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*
JOHN C. LEFFERTS, No. 100 Beekman St.

NEW YORK, *January*, 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any*, to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.

Sample Wringers sent, express paid, on receipt of price.

Manufactured and sold, wholesale and retail, by
PUTNAM MANUF'G CO.,
18 PLATT STREET, New York,
BENNINGTON, Vt.,
CLEVELAND O.

## GAS & WATER-METERS.
JOSEPH LENNIG,
**1615, 1617, and 1619 Francis St.,**
Above Ridge Avenue, Philadelphia, Pa.,
MANUFACTURER OF
**WET & DRY GAS METERS,**
STATION, SHOW, & EXPERIMENTAL METERS,
**Photometers, Pressure Registers, Indicators, and Gauges, Governors. Meter Provers, Centre Seals, Fluid Gauges, &c.**
GAS APPARATUS
Of the most reliable and approved construction manufactured and on hand at the
UNION GAS METER WORKS.

**H. R. WORTHINGTON'S**
## PATENT WATER-METER
This Meter combines
ACCURACY, SIMPLICITY, and
REMARKABLE DURABILITY,
with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.
HENRY R. WORTHINGTON,
61 Beekman steet, N. Y.

## IRON FOUNDRIES.
S. FULTON & CO.,
(Successors to Colwell & Co.,)
Manufacturers of
PIG IRON & CAST IRON GAS & WATER PIPES.
Also, Heavy & Light Castings of every description, No. 207 North Water street and 206 North Wharves, Philadelphia.
SAMUEL FULTON, THEO. TREWENDT.

**MORRIS, TASKER & CO,**
## PASCAL IRON WORKS,
[ESTABLISHED 1821,]
**PHILADELPHIA,**
Manufacture Wrought Iron Welded Tubes for Gas, Steam or Water; Lap-Welded Boiler Flues, GALVANIZED WROUGHT IRON TUBES,
ARTESIAN WELL PIPES,
of Wrought or Cast-Iron, screwed together, flush inside and out; Gas-works Castings, Retorts and Bench Castings for Coal Gas-works,; Cast-Iron Street Mains, Bends, Branches, Drips, &c.
**Gas and Steam Fitters' Tools, &c.**
STEPHEN MORRIS,
THOMAS S. TASKER,
CHAS. WHEELER,
STEPHEN M. P. TASKER.

J. VAUGHAN MERRICK, W. H. MERRICK,
JOHN E. COPE.
## SOUTHWARK FOUNDRY,
FIFTH & WASHINGTON STREETS,
**PHILADELPHIA.**
**MERRICK & SONS, Engineers,**
MANUFACTURERS OF EVERY DESCRIPTION OF GAS MACHINERY.
Retorts, Bench Castings, Condensers, Washers, Scrubbers, Wet or Dry Lime Purifiers, Coke Wagons, Fire Tools, Wrought Iron Grate Bars, Gasholders, either Telescopic or Single, with Suspension Frames complete; Wrought Iron Roof Frames, for Iron or Slate; Stop Cocks, Exhausters, Steam Pumps, Boilers and Tanks, Steam or Hand Air Pumps for providing Street Mains, Centre Seals, Governors, Wrought or Cast-Iron Line Sleeves for Purifiers, Purifier Hoisting Machines, &c., &c.
Address— MERRICK & SONS,
5th and Washington Streets, Philadelphia.

POOLE & HUNT,
BALTIMORE, MD.,
are prepared to execute orders for
GAS-HOLDERS,
**IRON-ROOF FRAMING,**
And all other descriptions of
**Iron Work for Gas-Works, Water-Pipes, and Heavy Castings, and Machinery generally.**

## PATENT AGENCIES.
F. C. TREADWELL, JUNR., SOLICITOR OF PATENTS,
335 BROADWAY
(Moffat's Building,) New York.

AMERICAN AND FOREIGN
PATENT AGENCY,
Established 1838.
Letters Patent for New Inventions procured in the United States, Great Britain, France, and other countries. LEMUEL W. SERRELL,
119 & 121 NASSAU ST., New York.

## GAS-BURNERS.
**T. G. ARNOLD,**
MANUFACTURER OF
**GAS-BURNERS**
And Importer of SCOTCH TIPS,
224 and 226 West 21st street,
formerly No. 447 BROOME ST.,
New York.
Mercury Cups, Portable Sockets, Burner Pillars, Burner Pliers, &c., &c.

**C. GEFRORER,**
Manufacturer of
GAS-BURNERS,
**For Lighting and Heating Purposes.**
GAS HEATING AND COOKING APPARATUS; FITTERS' PROVING APPARATUS, &c.
No. 111 South Eighth St.,
Philadelphia.

## GAS-FIXTURES
***Mitchell, Vance & Co.***
MANUFACTURERS OF
**CHANDELIERS,**
And every description of
**GAS FIXTURES,**
WAREHOUSE, No. 620 BROADWAY.
MANUFACTORY,
Nos. 335, 337, 339, 343 WEST 24TH STREET,
New York.

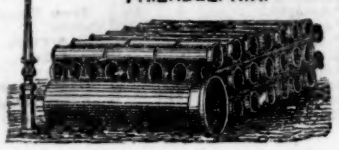
**PROTECTED WROUGHT-IRON WATER & GAS PIPE.**
HYDRAULIC CEMENT SEWER PIPE,
**KNIGHT & WOODWARD,**
Office, Cor. READE & CENTRE STS., New York.

Sewer Pipes extensively used in Brooklyn, and now introduced in New York, Jersey City, Newark, Hartford, Albany, and other localities, from 3 to 24 inches in calibre.

Water Pipes, lined and coated with Cement mortar, ready for laying and back filling, and can be tapped like cast-iron pipes, which they excel in durability, discharge, and economy.

Factory Cor. Bond & Union sts., Brooklyn.

**H. P. GENGEMBRE'S**
PATENT
## NON-FREEZING & NON-EVAPORATING FLUID,
**For Filling Wet Gas-meters,**
AND
*Far Cheaper than any other Meter-fluid in use.*
WARRANTED
Not to corrode tin, iron, brass, zinc, or drum-metal.
To be less injurious to wet meters that water.
Not to freeze at 20 degrees below zero, Fah.
Not to evaporate when in use in the meters, meters once filled with it requiring no further attention whatever for years.
The summer is the proper time to fill them.
SIX YEARS OF SUCCESS!
Five years in general use in works using it, to the exclusion of all other fluid, and driving the dry meter out of use, enables us to recommend our patent with perfect confidence.
For information and references, apply to
**GENGEMBRE & DOISY,**
Box 1 ,180,Cincinnati, O

**R. D. WOOD & CO.,**
MANUFACTURERS OF
**CAST-IRON PIPE, RETORTS, &c.**
**Office, 400 Chestnut Street,**
**PHILADELPHIA.**


THE AUBIN
**GAS-WORKS COMPANY,**
*Of Albany, N. Y.,*

Now contract their works to make 10,000 feet of good Gas from 2,000 pounds of *hard* wood and 40 gallons of kerosene tar, *before payment can be demanded;* and the charcoal is worth the cost of the wood.

Many Village Gas Companies can be referred to.

D. PARRISH, Jr.,
**GAS ENGINEER**
*And Contractor for Coal or Oil Gas-Works.*
Estimates given for Gas-Works, Gas-Holders, or any Gas Apparatus.
205 1-2 Walnut st., Philadelphia, Pa.
Box 1956, Post Office.

**To Manufacturers of Petroleum Gas.**

For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.

Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

**GLYCERINE**
FOR
**Filling Wet Gas-Meters**
***Cheaper than Whisky Or any***
*OTHER SUBSTANCE,*

We have furnished the Cincinnati Gas and Coke Company 300 barrels Glycerin, for filling their wet meters, and are now ready to supply other Gas Companies at the lowest cash prices.

We warrant our Glycerin not to corrode the meter metal, nor to freeze at the lowest ordinary temperature, nor to evaporate.

HARTMAN & LAIST,
Manufacturing Chemists,
*Cincinnati, O.*
Office 64 Sycamore.
Agent in New York, Paul Balluff, 95 Maiden Lan

**Great Improvement**
IN
**Sewing Machines.**
**EMPIRE**
**SHUTTLE MACHINE!**
**Patented February 14th, 1860.**
***alesroom, 536 Broadway.***

This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather o the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbert.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

**PRICE OF MACHINES,**
COMPLETE:

**No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete. - - - $60**
**No. 2. Small Manufacturing, with Extension Table, $75**
**No. 3. Large Manufacturing, with Extension Table, $85**
**No 3. Large Manufacturing, for Leather, with Rolling Foot and Oil Cup, 100**

*One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.*

Agents Wanted in all Towns in the United States, where Agents are not already established. Also, for Cuba, Mexico, Central and South America, to whom a liberal discount will be given Terms, invariably Cash on delivery.

**T. J. McARTHUR & CO.,**
***536 Broadway.***

**WOODEN PURIFYING TRAYS**
**PATENT**
**Conically Slotted Solid Wood Sieves**
**FOR GAS PURIFIERS.**

The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

**Manhattan, New York,**
**Metropolitan,**
**New York**
**Albany,**
**Troy**
**Brooklyn, L. I.**
**Williamsburgh,**
**Citizens**
**Baltimore, Md.**
**Louisville, Ky.**
**Chicago, Ills.**
**Cambridge Mas?**
**And numerous others**

Orders ecelved by mail or otherwise.
JOHN L CHEESMAN.
147 Avenue C New York City

NEW YORK FIRE-BRICK and Clay Retort Works. (Branch Works at Kreischerville, Staten Island.)

B. KREISCHER, office 56 Goerck street, corner Delancy street, New York.

GAS RETORTS, TILES and FIRE-BRICK of all shapes and sizes. FIRE MORTAR, CLAY, and SAND. Articles of every description made to order at the shortest notice. B. KREISCHER.

PHILADELPHIA FIRE-BRICK Works, corner of Vine and Twenty third streets, Philadelphia.

JOHN NEWKUMET,

Manufacturer of all kinds of FIRE-BRICK, GAS-HOUSE TILES, to suit all the different plans in use. Clay Retorts and Dentists' Muffles. Orders filled at short notic

WEST'S IMPROVED PUMPS, the most Simple, Durable, and Powerful, and the Cheapest in use.
J. D. WEST & CO.,
179 BROADWAY, N. Y.

WORTHINGTON'S STEAM PUMPS, extensively used by Gas-Light Companies. For Sale at greatly Reduced Prices. Also, a new and highly successful Pump, driven by water pressure, requiring no attention or repairs, and the most economical water motor yet constructed.

Patent GATES, for Water and Steam-stops.
HENRY R. WORTHINGTON,
61 Beekman street, N. Y.

**WILCOX & GIBBS**
**SEWING MACHINE**

It is entirely noiseless.
A patented device prevents it being turned backward.
The needle cannot be set wrong.
It received the Gold Medal of the American stitute in 1863.
InSend for a circular containing full information, notices from the press, testimonials from those using the machine, &c.

**JAMES WILLCOX,**
Manufacturer, 508 Broadway, New York
*Principal Offices:*
NEW YORK—508 Broadway.
BOSTON—282 Washington street.
PHILADELPHIA—715 Chestnut street.
CHICAGO—133 Lake street.
CINCINNATI—70 West 4th street.
LONDON—135 Regent street.
HAMBURG—44 Hermann street.
PARIS—82 Boulevard de Sebastopol.
ST. PETERSBURGH—15 Gorochovay.
VIENNA—9 Wildpretmarket.
BRUSSELS—12 Rue Croisade.
SYDNEY, AUSTRALIA—292 Pitt street

**TO GAS COMPANIES.**

THE UNDERSIGNED DESIRES TO undertake the supervision of several small Gas-works, to visit and examine them as often as may be necessary; to obtain and inspect their coal, castings, fire-brick, and other materials; and to manage their general business in such a manner that they shall be under such supervision as is now attainable in large works, at much increased cost. Also, to advise as general Consulting Engineer and expert in practical chemistry.

CHAS. M. CRESSON,
**Late Asst. Engineer of the Philadelphia Gas-works,**
417 Walnut st., Philadelphia.

DON'T FAIL TO READ THIS!

**COFFEE**

**COFFEE! COFFEE!**

**EAST INDIA COFFEE CO.**
**154 Reade St.,**
(Three doors from Greenwich St.,) NEW YORK,
Call universal attention to their
KENT'S
**East India Coffee,**

**KENT'S EAST INDIA COFFEE**
Has all the flavor of OLD GOVERNMENT JAVA, and is but half the price; and also that
**KENT'S EAST INDIA COFFEE**
has twice the strength of Java, or any other Coffee whatever and wherever used by our first-class hotels and steamboats—the stewards say there is a saving of 50 per cent.
**KENT'S EAST INDIA COFFEE**
is the most healthy beverage known, and is very nutritious. The weak and infirm may use it at all times with impunity. The wife of the Rev. W. Eaves, local minister of the M. E. Church, Jersey City, who has not been able to use any coffee for fifteen years, can use
**KENT'S EAST INDIA COFFEE**
three times a day without injury, it being entirely free from those properties that produce a nervous excitement.

Dr. JAMES BOYLE, of 156 CHAMBERS ST., says: "I have never known any Coffee so healthful, nutritious, and free from all injurious qualities as
**KENT'S EAST INDIA COFFEE.**
I advise my patients to drink it universally, even those to whom I have hitherto prohibited the use of Coffee.

The PRINCIPAL OF THE NEW YORK EYE INFIRMARY says: "I direct all the patients of our Institution to use, exclusively,
**KENT'S EAST INDIA COFFEE,**
and would not be without it on any account.

The Rev. C. LARUE, an eminent clergyman of the M. E. Church, now stationed at Halsey street, Newark, says of
**KENT'S EAST INDIA COFFEE,**
"I have used it nearly a year in my family, and find it produces no ache of the head or nervous irritation, as in the case of all other Coffees. It is exceedingly pleasant, and I cordially recommend it to all clergymen and their families."
**KENT'S EAST INDIA COFFEE**
is used daily by the families of Bishop Ames, Bishop Baker, Bishop James, and many of the most distinguished clergymen and professional men in the country."

**Beware of Counterfeits!**
and be sure that packages are labeled
KENT'S EAST INDIA COFFEE,
**154 Reade Street, New York,**
as there are numerous counterfeits afloat under the name of "Genuine East India Coffee," "Original East India Coffee," etc." put forth by imposters to deceive the unwary.

In 1 lb. packages, and in boxes of 36, 60, and 100 lbs., for Grocers and large Consumers. Sold by Grocers *generally.*

Orders from Country Grocers solicited, to whom a very liberal discount will be made.

Wholesale Agents: Hoeflish & Molan, and W. J. Heiss & Bro., Philadelphia; Francis H. Perry, Providence; A. L. Waite & Co., Boston; Pynchon & Lee, Springfield, Mass.; S. N. Callender, Buffalo; Gordon McMillan & Co., Cleveland; A. A. Colter & Co., Cincinnati; J. & J. W. Bunn, Springfield, Ill.: H. B. Shields, Corydon. Ind.; and C. C. Garber, Chicago.

The Am. Adv. Agency, 308 Broadway, N. Y., will receive orders for the above named Coffee.

*Business Dep.,* E. ALVORD. | *Corresp. Dep.,* FOWLER & WELLS.

SAVING OF FUEL TO PARTIES USING STEAM DAMPER REGULATORS.

Guaranteed to effect a great saving in fuel and give the most perfect regularity of power. For sale by the subscribers, who have established their exclusive right to manufacture damper regulators, using diaphragms of flexible vessels of any kind. CLARK'S PATENT STEAM AND FIRE REGULATOR COMPANY, No. 5 Park Place, New York.

"MAY THE BEST MAN WIN."

**SAVE YOUR MONEY!**

**The Cheapest, most Delicious and Healthy Coffee in the World!!**

LEIBIG'S
**ESSENTIAL**
**COFFEE**
**The most Healthy,**
**The most Economical,**
**The most delicious**
**PREPARATION OF COFFEE**
IN THE WORLD,
OLD OR NEW.

This Coffee is prepared under a formula from the great German chemist,

**PROFESSOR LEIBIG,**

and gives the essential full strength and delicious flavor of OLD GOVERNMENT JAVA COFFEE, which is the only quality of Coffee used in its preparation, without any of that narcotic quality which so sadly damages the nervous system in the use of even the best grades of Coffee as ordinarily prepared.

2d. It gives the essential tonic and diuretic elements of Dandelion, without the "hereby," coarse taste so disgusting, and yet always found in the ordinary Dandelion Coffee.

It is known to all acquainted with chemistry, that the essence, or oil, or whatever name may be given it, when properly and scientifically obtained from any herb or plant, is a far different article from that produced by putting that plant into water and boiling it out—permitting the escape of the most exquisite and reliable strength and leaving the coarse and earthy drugs precipitated or in solution.

So this preparation combines the exquisite aroma of the Java Coffee, with the highest essential excellence of the most choice Dandelion—yielding the spirit without the grosser earthy body of both; thereby avoiding the deleterious effects of both and becoming at the same time

**The most Delicious Beverage**
AND THE
**Most Health-giving and Restoring Drink**

Known in the world—being at once a sovereign remedy instead of prodncer of

**Dyspepsia and General Nervous Debility,**
**Flatulence, Fulness of the Head,**
**Dizziness, Costiveness, and**
**diseases of the Liver**
**and Kidneys,**

because of its great Tonic and Diuretic qualities.

The simple fact that the preparation is from Baron Leibig, will commend it to the attention of the scientific in all parts of the country, while the use of it will at once and permanently prove to the masses everywhere that it is the long-needed desideratum—in its way.

The immense popularity of this Coffee in the Old World is an earnest that its use and popularity in America is bound to become continent wide.

Another consideration not to be overlooked in regard to the matter, is that

**It Costs Less than Ordinary Green Coffee.**

And requires less than half the quantity to give the same degree of strength, and its use proves it at 30 cents a pound to be cheaper than Maricaibo coffee at 15 cents a pound.

Neatly packed in pound papers, with full instructions for use on each label—in SIXTY POUND BOXES. Price, 30 cents per pound. A liberal discount to the trade.

Manufactured by the PEOPLE'S PROVISION CO., 25 Chambers street, N. Y., to whom al orders may be addressed.

Sold by wholesale Grocers and

# GROVESTEEN & CO.,

# PIANO-FORTE MANUFACTURERS.

**499 BROADWAY, NEW YORK.**

The attention of the public and the trade is invited to our New Scale Seven Octave Rosewood Piano-Fortes, which for volume and purity of one are unrivalled by any hitherto offered in this marked. They conain all the modern improvements, French, grand action, harp pedal, ron frame, over-strung bass, etc., and each instrument being made under the personal supervision of Mr. J. H. Grovesteen, who has had a practieal experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"

**Received the highest award of merit over all others at the Celebrated World's Fair!**

where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and ilver medals from both of which can be seen at our warerooms.

By the introduction of impro ements we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES.

No. 1, Seven Octave, round corners, Rosewood Plain Case, $275.
No. 2, Seven Octave, round corners, Rosewood Heavy Moulding, $300
No. 3, Seven Octave, round corners, Rosewood Louis XIV, style $325, a fac-simile of the accompaning cut.

TERMS—NET CASH, IN CURRENT FUNDS. Descriptive Circular sent free.

# LILLIE'S

CELEBRATED

# Chilled and Wrought Iron Safes,

**WROUGHT IRON FIRE-PROOFS,**

## LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.

They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually protected from rust in any climate, and the Fire-proof not subject to lose its utility by age. This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in two or three years.

To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

**LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS**

| | Outside. | | | Inside. | | | |
|---|---|---|---|---|---|---|---|
| No. | Height. | Width. | Depth. | Height. | Width. | Depth. | Price. |
| 6 | 40 | 31 | 27 | 31 | 21 | 15 | $150 |
| 5 | 34 | 21 | 26 | 24 | 21 | 14 | 125 |
| 4 | 31 | 27 | 25 | 22 | 18 | 18 | 110 |
| 3 | 30 | 24 | 24 | 21 | 15 | 12 | 100 |
| 2 | 28 | 22 | 23 | 20 | 14 | 12 | 75 |
| 1 | 24 | 19 | 20 | 17 | 11 | 10 | 50 |

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

## PRICE LIST.

**LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.**

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

| OUTSIDE. | | | | INSIDE. | | | |
|---|---|---|---|---|---|---|---|
| No. | Height. | Width. | Depth. | Height. | Width. | Depth. | Price. |
| | In. | In. | In. | In. | In. | In. | |
| 1 | 66 | 50 | 29 | 54¼ | 39 | 18 | $950 |
| 1½ | 59 | 50 | 26 | 48 | 39 | 15 | 800 |
| 2 | 58 | 44 | 27 | 42¼ | 33 | 15 | 600 |

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | 50 | 42 | 27 | 40 | 32 | 16 | $500 |
| 4 | 46 | 42 | 27 | 36 | 32 | 16 | 450 |
| 4½ | 38 | 46 | 27 | 28 | 36 | 16 | 450 |
| 5 | 42 | 38 | 27 | 31½ | 27½ | 15 | 350 |

Single Doors and M. Lock.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | 38 | 35 | 26 | 27½ | 23½ | 15 | $250 |
| 7 | 34 | 31 | 26 | 24 | 21 | 14 | 200 |
| 8 | 31 | 28 | 24 | 21 | 18 | 13 | 175 |
| 9 | 30 | 24 | 24 | 21 | 15 | 12 | 140 |
| 10 | 26 | 22 | 22 | 19½ | 18½ | 12 | 120 |
| 11 | 24 | 20 | 18 | 17 | 17 | 10 | 100 |

HOUSE SAFES.

| | |
|---|---|
| SIDE BOARD | $600 |
| DINING ROOM | 350 |
| PANTRY (No. 1) | 275 |
| PANTRY (No. 2) | 150 |
| DUODECAGON BANK LOCK | 100 |
| MONITOR SAFE do. | 50 |
| SAFE do. | 10 |

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

| OUTSIDE. | | | INSIDE. | | | |
|---|---|---|---|---|---|---|
| No. | Height. | | Hei | Width. | Depth. | Price. |
| | In. | | In. | In. | In. | |
| 1 | 68 | | 55 | 39 | 18 | $1,200 |
| 2 | 61 | | 48 | 39 | 18 | 1,050 |
| 3 | 57 | | 42½ | 33 | 18 | 900 |

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 68 | 53 | 27 | 64 | 48 | 20 | $1,000 |
| 0½ | 61 | 53 | 27 | 55 | 46 | 20 | 800 |
| 1 | 57 | 47 | 27 | 49 | 40 | 20 | 600 |

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | 53 | 32 | 26 | 49 | 28 | | |
| 3 | 42 | 34 | 22 | 38 | 32 | 19 | 90 |
| 4 | 36 | 31 | 20 | 32 | 27 | | |
| 5 | 30 | 24 | 18 | 26 | 20 | 14 | |

BANK VAULT DOORS AND FRAMES,
D and S Lock.

| No. | Height clear. | Width clear. | Depth adjustable. | Price. | Weight. |
|---|---|---|---|---|---|
| | In. | In. | In. | | |
| 1 | 73 | 37 | 20 | $400 | 3,000 |
| 2 | 73 | 27 | 20 | 275 | 1,500 |

Orders received and filled at net cash prices, by the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York. All Safes shipped from Troy free of cartage.

*Business Depart.*, E. ALVORD. *Corresponding Depart.*, FOWLER AND WE

# WEST'S IMPROVED PUMP.

**Anti-Freezing, Double-Acting, Forcing, and Lifting**

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

**THE BEST!**

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, a guarantee that all will recommend them. They are more simple in construction, and work easie and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best in the market. It is very simple, works to a charm, so that any child may use it; throws a steady, continuo us stream, and does not freeze in the coldest exposures, and is unusually cheap. We sa this know s.ngly, and give the testimony of our own accord, without the knowledge or request of the proprietor "—*New York Evening Post, July 1st*, 1863.

"J. D, WEST & Co.: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 180 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.

"DUNLAP MANUFACTURING CO."

*Solon Robinson to the Farmers' Club.*

Jan. 23.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a once a suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it.....to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year.....I know this, and think I may be doing the farmers good by speaking of it.....A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream.....It can be made to work in deep wells as well as ni shallow ones."

"GREAT NECK, L. I., 1860.

"I have used this Pump for one summer and winter, exposed to the northwest wind coming over Long Island Sound, being the coldest possible exposu e, and at no time did it freeze, nor were we unable at any time to pump water with great ease.

H. B. MC ILVAIN."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.

"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESSEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

*From the New York Observer.*

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.

"J. D. WEST & Co.—Gents: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.

"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sundays), and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.

"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

**J. D. WEST & CO., 179 Broadway, New York.**

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway

## AMALGAM BELLS,
## AMALGAM BELLS,
## AMALGAM BELLS,
## AMALGAM BELLS

At prices within the reach of every Church, School, Cemetery, Factory, or Farm in the land. Their use throughout the United States and Canadas for the past six years has proven them to combine most valuable qualities. Among which are TONE, STRENGTH, SONOROUSNESS, and DURABILITY OF VIBRATION, unequalled by any other manufacture. Sizes from 15 to 5,000 lbs., costing TWO-THIRDS LESS than other metal, or 25 cents per pound, at which price I warrant them twelve months. Old bell metal taken in exchange, or bought for cash. Send for a circular to the manufacturer,

JOHN B. ROBINSON,
No. 36 DEY STREET, NEW YORK.

**List of Academy, Steamboat, Fire-alarm, and Church Bells, with particulars as to Weight, Sizes, Price of Bells, Hangings, etc.**

| Weight of Bells. | Diameter. | Price of Bells without Hangings. | Price of Patent Hangings. | Price of Bell and Hangings complete. |
|---|---|---|---|---|
| 225 lbs. | 26 inches. | $56 00 | $15 00 | $71 00 |
| 275 " | 42 | 69 00 | 18 00 | 87 00 |
| 375 | 36 | 94 00 | 22 00 | 116 00 |
| 450 | 84 | 112 00 | 25 00 | 137 00 |
| 600 | 02 | 150 00 | 30 00 | 180 00 |
| 750 | 39 | 188 00 | 35 00 | 225 00 |
| 1,000 | 64 | 250 00 | 42 00 | 292 00 |
| 1,200 | 48 | 300 00 | 45 00 | 345 00 |
| 1,400 | 50 | 350 00 | 50 00 | 400 00 |
| 1,600 | 52 | 400 00 | 54 00 | 454 00 |
| 1,800 | 55 | 450 00 | 60 00 | 510 00 |
| 2,000 | 58 | 500 00 | 62 00 | 562 00 |
| 2,500 | 60 | 625 00 | 72 00 | 697 00 |
| 3,000 | 63 | 750 00 | 85 00 | 835 00 |
| 3,500 | 66 | 875 00 | 87 00 | 962 00 |
| 4,000 | 69 | 1,000 00 | 100 00 | 1,100 00 |
| 4,500 | 72 | 1,125 00 | 118 00 | 1,288 00 |
| 5,000 | 75 | 1,250 00 | 125 00 | 1,375 00 |

**List of Prices, Weights, and Sizes of Farm, Hotel, Steamboat, Schoolhouse, Shop, and Factory Bell.**

These Bells are fitted with Yoke, Standard's Crank and Bolt, complete for use.

| Weight of Bell and Hangings. | Diameter. | Cost of Bell and Hangings complete. |
|---|---|---|
| 15 lbs. | 7 inches. | $3 75 |
| 20 | 8½ | 5 00 |
| 35 | 10 | 8 75 |
| 50 | 12 | 12 50 |
| 75 | 16 | 18 75 |
| 100 | 18 | 25 00 |
| 150 | 20 | 37 50 |
| 200 | 22 | 50 00 |
| 250 | 24 | 62 50 |

**Larger Sizes made to Order at 25 cents per pound.**

**Guarantee.**—All Bells sold at the above prices WARRANTED against breakage by fair ringing, for TWELVE MONTHS from time of purchasing. Should one fail, a new bell will be given by returning the broken one.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York.

In case a Bell breaks after the expiration of the Warrantee, I allow HALF PRICE for the old metal. JOHN B. ROBINSON, 36 Dey Street, N. Y.

## PRINCE'S METALLIC PAINT,

AN INDESTRUCTIBLE COATING FOR

**IRON, TIN, and WOOD.**

It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals, without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and canvas coverings. prevents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids or ammonia.

It hardens under water, as has been fully demonstrated by its application to gas-holders, by many of the largest gas companies in the United States; which companies having thoroughly tested its properties as herein claimed, pronounce in its favor over any other paints in the market, even though sold at double its price.

As a coating for patterns of iron or wood, when mixed with shellac, it is much superior to beeswax, oil, or shellac alone, as has been proven at the large founderies in the country.

For patching boilers and making joints, it is considered superior to red lead, or any other preparation.

For cleaning metals it takes the place of crocus, rouge, and emery, being better and cheaper.

This Paint requires no more oil than dry lead or zinc, and much less than the ordinary mineral paints. It is free from any waste, and possesses a spreading and covering power unequaled.

*Terms, by the Barrel or Half Barrel, Five Cents per Pound.*

A liberal discount made to parties purchasing by the ton.

A Barrel or Ton will be forwarded to any gas companies desirous of testing its qualities, for which there will be no charge if it does not give entire satisfaction as being the cheapest and most durable of all other Paints in the market.

Also, Prince's Imperial Black Paint, and Prince's Protoxide of Iron.

DANIEL SLOAN, General Agent,
115 LIBERTY STREET, NEW YORK.

*Local Agent*—CALVIN GAY, 29 Doane st., Boston.

THE
## STANDARD
## Gold Company
**OF COLORADO.**

DIRECTORS,
ROBERT BOWNE,
EDWARD WILLIS,
LIVINGSTON SATTERLEE,
ETHAN ALLEN,
S. A. BANKS,
SYLVESTER TAYLOR.
President, ROBERT BOWNE.
Secretary, F. A. MITCHEL.

MINES on FISK LODE,
BOBTAIL LODE,
GROUND HOG LODE,
ENTERPRISE LODE,
and others,
In all, 8,625 feet (linear), and large water powers and mill sites.

Capital issued, 40,000 shares, at $10 per share.

A limited number of shares are offered at the low SUBSCRIPTION PRICE (having been reserved for their customers), by

WILLIAMS & MITCHEL, 15 Wall Street

*SAFEST AND CHEAPEST SYSTEM OF INSURANCE.*

## WASHINGTON
INSURANCE COMPANY
**172 BROADWAY,**
Cor. Maiden Lane, NEW YORK.

CASH CAPITAL, - - - $400.000.
Assets, June 1, 1864, - - - 600,000.

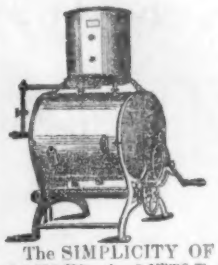
Scrip Dividend, 1863, - - 60 per Cent.
Scrip Dividend, 1862, - - 60 per Cent.
Scrip Dividend, 1861, - - 60 per Cent.

*The Policies entitled to participate receive 75 per cent. of net Profits.*

Insures Buildings, Merchandise, Furniture, Rents, Leases, against loss or damage by FIRE, and MARINE RISKS on LAKES, RIVERS and CANALS.

GEO. C. SATTERLEE, President.
HENRY WESTON, Vice Prest.
WM. K. LOTHROP, Secretary.
WM. A. SCOTT, Ass't Secretary.

## DRAKE'S
PATENT
## AUTOMATIC GAS MACHINE.



THIS MACHINE, which has been in constant use for more than two years, is now acknowledged to be the

**Most Convenient,**
**Simple, and**
**Efficient Method**

OF LIGHTING BUILDINGS OF ALL KINDS, out of the reach of regular gas-works, ever brought to public notice.

The SIMPLICITY OF THE APPARATUS, its ENTIRE FREEDOM FROM DANGER, the LITTLE ATTENTION REQUIRED, the EASE WITH WHICH IT IS MANAGED, and THE CHEAPNESS and SUPERIORITY OF THE LIGHT, has gained for it the favorable opinion of those acquainted with its merits.

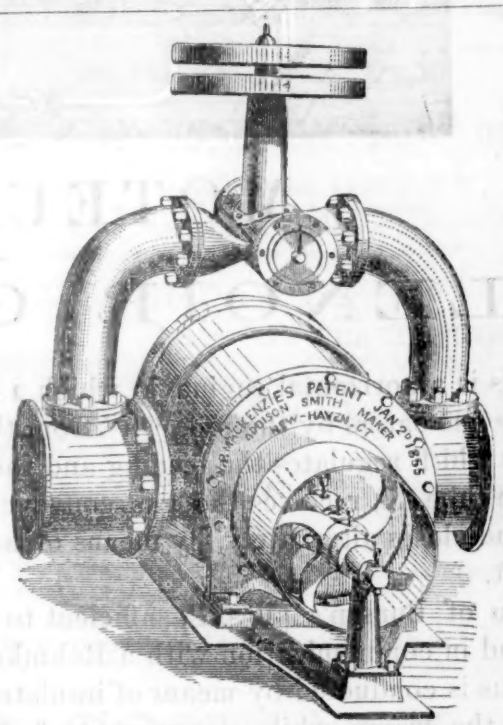
The Machine takes up but little room; no disagreeable odor is experienced in its use; no fire is applied to the apparatus at all; it can be attached to ordinary gas-pipes used for coal-gas, and is burned through the same kind of fixtures.

These Machines are manufactured in Boston, by the AUTOMATIC GAS-MACHINE CO., and are for sale at their Store, 78 Washingtons eet, Boston, and also at the Agency, MITCHELL, VANCE & CO.'s, No. 620 Broadway, New York

For further particulars, address—

**MITCHELL, VANCE & CO.,**
620 BROADWAY, NEW YORK CITY.

## SMITH & SAYRE,
Sole Proprietors and Manufacturers of




## THE MACKENZIE PATENT GAS EXHAUSTER AND COMPENSATOR.

They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the pu tion and illuminating power of the gas, and add very much to the durability of the retorts, e clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, dur cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

We are also sole proprietors and manufacturers of the

MACKENZIE PATENT BLOWER, PATENT CUPOLA AND SMELTING FURNACE.

The Blower is a Force Blast machine, durably built, and can be driven with one-third the powe required to drive the ordinary Fan. The Cupolas are manufactured in sizes to melt from 1 ton to 20 tons per hour, will save one quarter of the time required by the old style Cupola, and 33 per cent. uel. Address SMITH & SAYRE, 458 Broadway, New York.

## SATTERLEE & CO.,
**BANKERS**
AND
STOCK BROKERS,
***49 Exchnge Place.***
NEW YORK.

G. B. SATTERLEE, H. TRACY ARNOLD,
H. A. BOSTWICK, LIVINGSTON SATTERLEE.

Mining Stocks bought and sold at the Regular, Mining, Boston and Philadelphia Boards.

**ALBERT H. NICOLAY,**
**STOCK BROKER AND**
**AUCTIONEER,**
**No. 52 William Street,**
NEAR WALL ST., NEW YORK.
Special attention given to the Buying and Selling of Gas-Light Companies' Stocks.

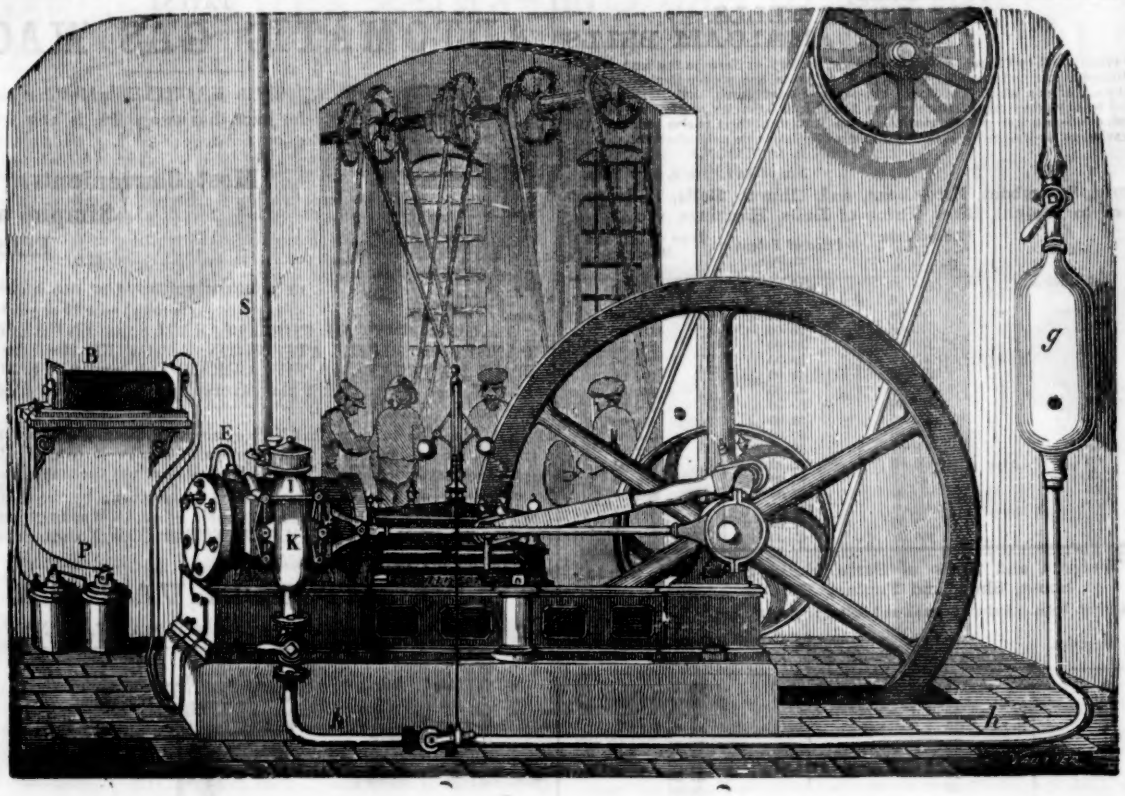
**PARTICIPATION.**
## ÆTNA FIRE INS.
**COMPANY OF NEW YORK,**
NO. ***170*** BROADWAY.

CASH CAPITAL, $200,000. CHARTERED 1824.

The insured receive seventy-five per cent. of the net profits annually, without incurring any liability. When preferred, a discount will be made in lieu of participation in profits.

Scrip Dividend of 1861, - - 50 per cent.
Scrip Dividend of 1862, - - 50 per cent.
Scrip Dividend of 1863, - - 50 per cent.

JACOB BROUWER, *President.*
H. C. BEACH, *Secretary.*
WM. BARBOUR, *Asst. Sec.*




# MOTEUR—LENOIR.

# LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end ot the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distance from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

## THE LENOIR GAS ENGINE

**Requires no Fire and makes no Smoke,**

**No Noise, no Dirt, and is thoroughly safe.**

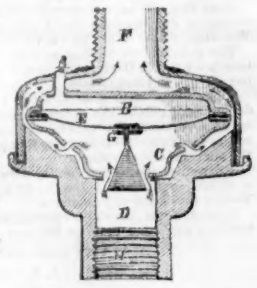
It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

## ELECTRIC SPARK

## NOTICE TO GAS COMPANIES AND GAS CONSUMERS.

# THOMPSON'S PATENT GAS CONTROLLER,

*The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.*




THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

**The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.**

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SANDS, Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "
GEO. H. KITCHEN, Inspector of Gas Meters, N. Y.
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 111 Pearl street, where they can see the operation by pressure guage and test meters

M. L. CALLENDAR, Agent
Office, 111 PEARL STREET.

# THE AMERICAN METER CO,

*Organized under the General Manufacturing Laws of the State of New York.*

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER.

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durab ility, accuracy and excellence of workmanship. Orders addressed

## AMERICAN METER COMPANY,

512 WEST TWENTY-SECOND STREET, NEW YORK,
ARCH AND TWENTY-SECOND STREETS, PHILADELPHIA,
1 BARRETT STREET, BOSTON, will meet with prompt attention.

## HARRIS & BROTHER, PRACTICAL GAS METER MANUFACTURERS,

Continue, as heretofore, at their old Establishment, **No. 1117 CHERRY ST., PHILADELPHIA,** to Manufacture

WET AND DRY GAS METERS and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicited, and promptly attended to, by
HARRIS & BRO., No. 1117 Cherry st., Phila.

Messrs. Harris & Brother, Philadelphia Gas Works, February 14, 1857.

Dear Sir—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality; the number furnished by you to these works is over 5,000.
JOHN C. CRESSON, Engineer.

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of workmanship and accuracy of registration; they are surpassed by none, and equalled by few manufactories in the Union; we have used meters made by other establishments, but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.
G. S. HOOKER, Superintendent of the Gas Light Company of Augusta, Ga,

Messrs. Harris & Brother, Philadelphia. Philadelphia, March 4, 1858.

Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanship all we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKBINE & MEARS.

Messrs. Harris & Brother. March 14, 1857.

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory and take pleasure in expressing my opinion as to their correctness. On several occasions I have taken your meters apart, and found the materials used in the manufacture of the same to be as fine quality as is used in those imported from Europe, or made by any of the manufacturers in the United States.
Respectfully Yours, GEORGE WIEGAND,
Inspector of GasFittings, Philadelphia Gas Works.

# Glycerin for Gas Meters.

This article is superior to any fluid ever before used for Wet Meters, and we cannot better set forth its advantages than by giving the following letter from the Superintendent of the Co ington Gas Co. The superiority of our Glycerin over all others in the market, for this purpose, is admitted by every Company that has used it. We have sold, the past winter, to the Cincinnati Gs -Light and Coke Co.; to the Gas Companies of Covington,; Ke.; Dayton, Springfiel , Portsmouth, Urbana, and Piqua, Ohio Richmond, Ind., and Buffalo, N. Y, to whom we refer.

Glycerin is much cheaper than Whisky is now, or likely to be areafter, and not evaporating, greatly increases the economy of vs use.

OFFICE OF THE COVINGTON GAS-LIGHT CO.
COVINGTON, KY., Feb. 18, 1864.

MESSRS. W. J. M. GORDON & CO.:

Dear Sirs,—It affords us great pleasure in testifying to the superiority of the Glycerin Fluid purchased from you for filling the Wet Meters now in use by the Covington Gas-Light Company.

The difficulty of finding a non-evaporating and anti-freezing mixture for Wet Meters, has, in my opinion, been overcome by the use of your Glycerin Fluid.

I have had it in constant use for the past four months, and during that period the thermometer has ranged as l ow as 14o below zero, and after careful examination, I have found the fluid in the same condition as when first put in the Meters, and without the slightest discoloration.

Its non-evaporating quality does away with the hitherto una voidable expense of filling the Meters monthly, and renders Wet Meters no longer objectionable.

In fact, I can cheerfully recommend it as being cheaper and better than any other Fluid or Mixture now in use.

Very respectfully,
S. S. STRATTON, *Sup't Cov. Gas Co.*

We have been engaged in Manufacturing Glycerin the past six years, and from our advantage in material and the large amount we make, are enabled to offer it lower than any manufacturer in this country. We will be pleased to quote prices or to give further information.

**W. J. M. GORDON & BRO.,**
MANUFACTURING
**CHEMISTS & DRUGGISTS,**
N. E. Cor. Central Avenue & Eighth St.,
Laboratory, Miami Canal, bet. Third & Fifth Sts.,
CINCINNATI, O.

---

ATLAS
OF THE
# OIL REGIONS.

The extraordinary developments of the last few years have rendered indispensable to the community, A NEW and RELIABLE map of that portion of Pennsylvania, known as the OIL REGIONS. And such a Map, in the form of an Atlas, made from actual surveys of the whole territory (and the only surveys that have been made in the territory,) is now being prepared for publication by the undersigned, to which your special attention is invited. In will embrace the whole of VENANGO and portions of CRAWFORD and WARREN Counties, and is designed to be the most complete and perfect work of the kind ever published, showing distinctly—

1 A general map of Venango and parts of Warren and Crawford counties, Penn., and enlarged plans of each township.

2 All the original lot lines.

3 All subsequent subdivisions of lots in the oil districts, with the names of present owners or lessees.

4 All the Roads, Rivers and Creeks accurately deineated.

5 All Dwellings, Factories, Mills, Refineries, and Shops of every description.

6 Enlarged plans of all important Towns and Vil lages.

7 Enlarged plans of all the oil lands on Aleghany River, Oil Creek, French, Pithole, Tionesta, Hemlock and Tidelute Creeks, Cherry and Cherry Tree Runs, and all other Creeks and Runs on which discoveries o oil have been made.

8 Location and brief description of the property of all the principal Oil Companies.

9 Location and names of all the Oil Wells in the Territory.

10 A brief history of the Oil Business, from its first discovery to the present time, with valuable statistical information, making a volume of some fifty pages, about 15x18 inches, substantially bound.

A limited number of business cards pertaining to the production or sale of oil, or oil territory, will be received, and if early application be made, parties may have views of their establishments, or wells, with brief notices of the same, inserted.

The surveys for the Atlas are completed, and the proprietors intend to have it ready for delivery to subscribers (only) by about the 1st of January next.

All persons or firms desiring the work are requested to send their names as subscribers to the undersigned before the 1st of December, and designate the number of copies wanted, and the place where they wish them delivered.

F. W. BEERS & Co.
48 John St., New York,
or Franklin, Penn
Franklin, Penn., Oct. 20, 1864.

---

*New York, April 18th, 1864.*

* * * * * *

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

## "GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation*, for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "GOLDEN BITTERS" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

### For Creating a Healthy Appetite

they are invaluable, and are unequalled as a TONIC. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

### They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

### As a Beverage

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to LADIES, and particularly to those suffering from

**DEBILITY, WEAKNESS, AND PROSTRATION.**

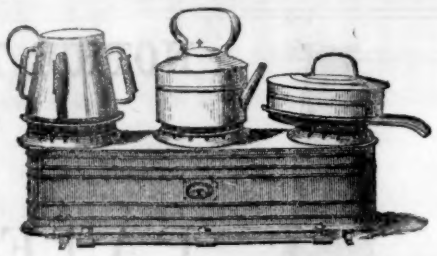
Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists, Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

GEO. C. HUBBEL & Co., Sole Proprietors.
CENTRAL DEPOT, American Exp. Building, New York.

THE GOLDEN BITTERS.—We are not an advocate of stimulants of an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitters, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy o keep in the house.—*New York Weekly Day Book.*

---



# Cooking & Heating
## BY GAS.

CHEAPER THAN COAL OR WOOD.

## The "EAGLE" Gas Heating
STOVES,

Positively guaranteed free from Smoke or Smell.

Will Heat Offices, Parlors, Dining, Sleeping, and Bath Rooms. Also,

## The EAGLE Gas Cooking
STOVES & RANGES,

Will BOIL, BROIL, ROAST, BAKE, TOAST, STEW, and HEAT IRONS

The EAGLE GAS STOVES and RANGES have been in use for over Three years, and are found to be the most SIMPLE, COMPLETE and PERFECT Arrangment for HEATING and COOKING, in every respect, ever invented, and to do the Work with LESS TROUBLE, in LESS TIME and at LESS EXPENSE than any Coal or Wood stove.

Their WONDERFUL NEATNESS, CONVENIENCE and ECONOMY can be seen at a glance.

WE ALSO MANUFACTURE

## COAL OIL STOVES,
**For Cooking and Heating.**

The American Advertising agency 389 Broadway, N. Y. Bus. Dept., E. Alvord, cor. Dept., Fowler & Wells, receive orders for our stoves.

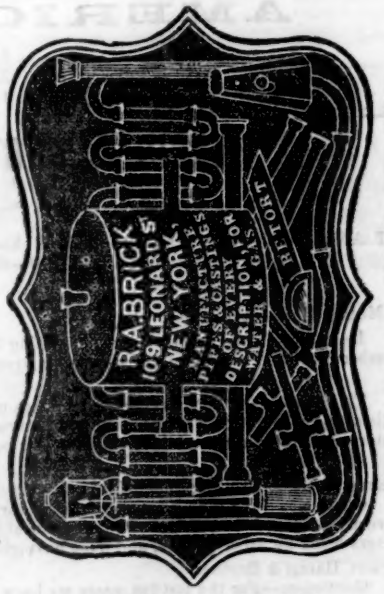
EAGLE GAS STOVE MANUFACTURING CO.
**No. 474 BROADWAY, N. Y**

☞ The Company have descriptive Catalogues, which will be sent or delivered, upon application for them.

---

PIPES AND CASTINGS,

**BERGEN IRON WORKS,**




OFFICE 109 LEONARD STREET, NEW YORK.

OF EVERY DESCRIPTION.